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*Analysis on Social Remittances as the Impact of International Migration
Case Study: The Return Migrant Women in East Java Indonesia*

Henny Rosalinda

Brawijaya University, Indonesia

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1. Introduction

During the past decade, there has been considerable interest in the forces for the international migration in South East Asia. Of these, Indonesia is one of greatest sending countries of labors, mostly dominated by female migrant labors. In 2010, there were 2,503.3 thousand Indonesians who migrated to countries, such as Malaysia, Saudi Arabia, Taiwan, Hong Kong, and so forth. The inward remittance flows in 2010 is 7,139 US\$ millions (The World Bank, 2011). The hosting countries draw workers from East Java, West Java, Central Java, Nusa Tenggara, and Sumatra (Kaur, 2006).

Apart from a good fact that Indonesia has been able to send their female citizens as labors overseas, comprising more than 70% out of the total Indonesian migrant labor (Anggraeni, 2006), there have been so many mistreatments experienced by those female labors. Women might have problems even prior to their departure, the problem still continues during their contribution overseas, and even more once they return. The later problem is somewhat needs to be taken care of wisely as it deals with those women's future survival and opportunity, especially in terms on how they spend and use their money to improve their life quality.

The remittances influence the local incomes in economic matters. Migrants remit their money because it is considered the main purpose of their departure. They want to improve the life for themselves and their entire family. Return migrants have competency and capacity to perceive how the international migration may link to the development. Based on general subjectivities, their perceptions are tested with other stakeholder's opinion. This results in certain ways to rethink how the migration relates to the development of Indonesia.

In addition to sending money, migrants and return migrants remit the new pattern of value, behavior, and practices from their experiences overseas. Unfortunately, the study about how the remittance can be assessed culturally and socially has not been discussed much. Most debates about migration and development emphasize the economic at the expense of the social.

2. Objectives

The objectives of this study is by having Levitt indicator on assessing social remittances, the research aims to analyze how those indicators are implemented by the return migrant women in Indonesia particularly in East Java. Eventually, the research attempts to recommend how the remittances may contribute to development.

3. Methodology

The research belongs to the qualitative method by having a descriptive way of gathering information and presenting the existing condition. The primary data was collected through semi structured and in-depth interviews with 27 return migrant women and by observing their households. A snowball sample was used by asking each respondent to recommend other people, who might also be willing to participate in the research. Some interviews were also conducted with the family, neighbors, institutions, and related government. There were **31 respondents** of this type. The institutions were Citra Kartini Cooperative, which manages and regulates migrant's

remittance and are also concerned with return migrant issues, and Serikat Buruh Migran Indonesia (Indonesian Migrant Worker Union) of Malang Branch. The government respondents are the office staff from Department of Manpower and Transmigration of Malang and Tulungagung. Secondary data was taken from published studies of books, journals, and other literary instruments. Many fruitful inputs were gained through the seminars and discussions among other scholars. During the fieldwork, some discussions were also conducted with scholars from Brawijaya University, Malang.

4. Discussion

The status of women in Indonesia varies widely across the country, reflecting the diversity of ethnic group traditions and social expectations about the behaviors of men and women across the archipelago. Women's rate of primary and secondary school enrollment is approximately equal to boys, but gender inequality still manifests itself in political participation and employment. According to the ILO, women in the workforce earned 68 percent of that of male workers (Pasaribu, 2004).

Worker migration from Indonesia is dominated by female domestic workers. Hugo states that turning to the gender dimension in Indonesia migrant labor flows, while women dominate some undocumented flows, women outnumber men among documented migrant flows (Hugo, 2002). Kaur (2006) notes a report in *Migration News* that of the 1.5 million Indonesian migrant, who went abroad officially between 1994 and 1999, about two thirds were women. This also was documented by the Indonesian government and the World Bank. In 2002, 76 percent of 480,393 overseas workers from Indonesia were women, and 94 percent of these women were employed as domestic workers in Middle Eastern, East Asian, and Southeast Asian countries (Buchori, 2003).

In the above studies, the women cited financial necessity and a desire to support their parents and children as their primary reasons for seeking work in Malaysia. Some women stated that they were interested in seeing a different country and having new experiences. Most were between the ages of seventeen and thirty-five, and had completed elementary or middle school (Human Rights Watch, 2004).

The international community has long recognized that workers away from home can be vulnerable to abuse (Martin, 2006). Controversies arise from female migration, especially those moving to Saudi Arabia and Malaysia due to a high risk of being exploited as an employee through over work, extended hours, poor conditions, sexual harassment and assault from male members of their households (Wijaya, 1992). The Indonesian government has taken actions for a moratorium of migration process, particularly in the informal sector. Due to the many problems experienced by Indonesian women workers overseas. Although some women might have problems prior to their departure, in many cases the problems still continues during their contribution overseas, and even more once they return. The later issue needs to be assessed thoughtfully.

Female migrants and their remittances are considered important factors in economic development due to their contribution to foreign exchange, unemployment solution, and poverty reduction. These concepts all deal with economic consequences. Besides

sending money, migrants sometimes introduce new behavior as a result of their overseas experience. When they return to their sending community, these women become change agent, with sets of new values, practices and capital. Whether they were economically successful or unsuccessful, as migrants, they take in part in social structure and development on their return. They are also familiar with international interactions which can be utilized to engage in development actions on their own.

Development can be defined as the enlargement of people's 'capabilities' as what they are able to do and be in life. People are their own providers of aid: they are the beneficiaries, as well as the architects of economic and social progress (Sen, 1999). The return migrants become key players in their communities, associations, local authorities, civil society, the private sector, and the academic sectors. The international community has increasingly supported the creation of cooperation between return migrants, which have the potential to better link the migration and development of origin and hosting countries.

Using the human development approach, adequate opportunities must be in place to support the activities of return migrants. Among these actors, policymakers should dedicate special attention to the role played by migrants themselves. The human development approach recognizes the ways in which return migrants' contributions to development occur, not only financial remittances, but social remittances such as networks and relations, skills and knowledge, ideas and values (Levitt, 1998) embed developmental potential.

Levitt (2004) explains that not all migrants are transnational migrants nor do all those who participate in transnational activities do so all the time. But when return migrants are considered as bunches of small groups which are regularly involved in their sending country, and others participate periodically, their combined efforts add up. Taken together and over time, these activities constitute a social force with tremendous transformative significance that can modify the economy, values, and everyday lives of entire regions. Social remittances play a key role in bringing about such changes. Not all social remittances are positive, however. What some consider a force for greater democratization and accountability, others hold responsible for rising materialism and individualism.

There are few scholars, who assess remittances, wearing the lens of a social approach. Social Remittances are the ideas, behaviors, identities, and social capital that flow from the hosting country to the sending community. Indicators on evaluating social remittance are: normative structure, system of practice, and social capital (Levitt, 2001).

The return migrants have the potential to connect many aspects of their lives in host countries, these include context-related knowledge, emotional ties, legitimacy vis-à-vis local populations and insight into the diverse local realities in which they participated (de Haas 2006) The successful return migrant has the capacity to leverage their social remittance contributions in development actions on their own, their community, or serve the related policy makers through constructive policy ideas.

However, the potential of return migrant should not be overestimated. In Indonesian's case, the majority of migration is south-south migration. The social and cultural

backgrounds among the countries are relatively the same.

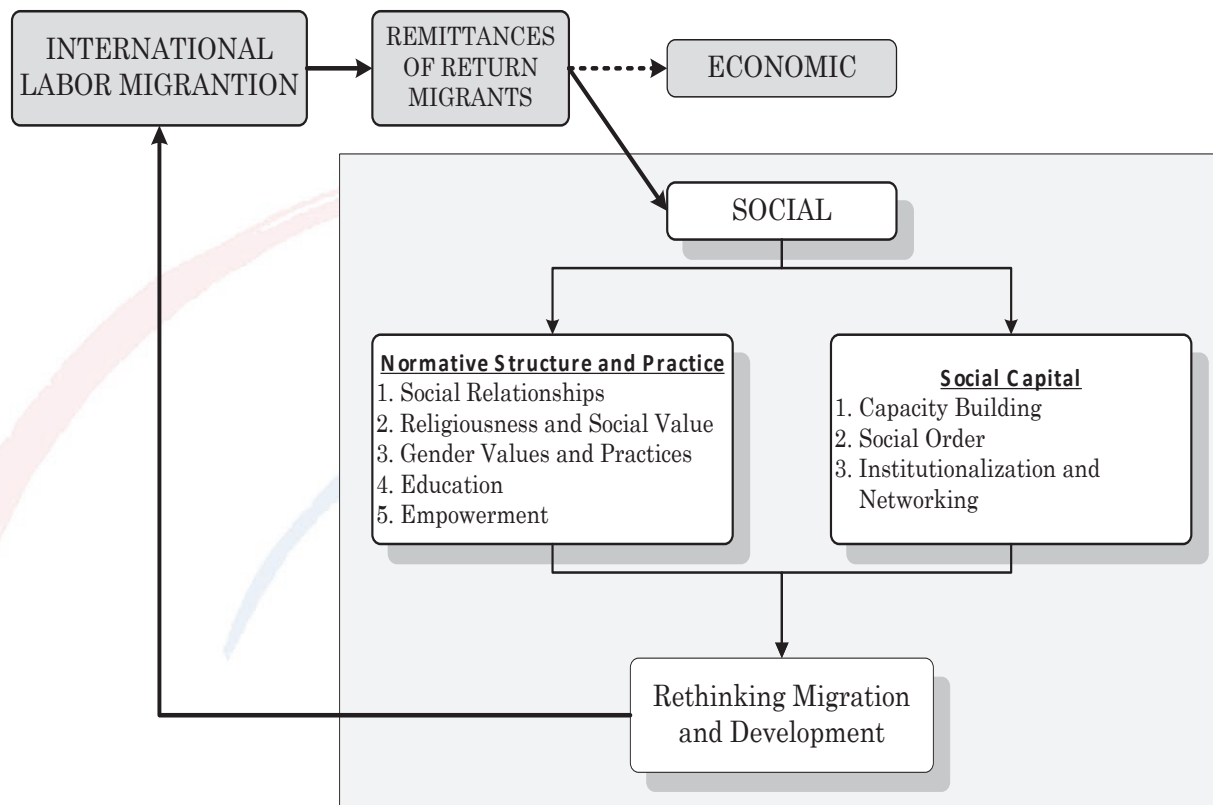
Normative structures include ideas, values, and beliefs. They include norms for behavior, notions about family responsibility, principles of neighborliness and community participation, and aspirations for social mobility. They encompass ideas about gender, race, and class identity. They also include values about how organizations should work, incorporating ideas about good government and good churches, and about how politicians and clergy should behave (Levitt, 2001; p.59).

Systems of practice are the actions shaped by normative structures. These include how individuals delegate household tasks, the kinds of religious rituals they engage in, and how much they participate in political and civic groups. They also include organizational practices such as recruiting and socializing new members, goal setting and strategizing, establishing leadership roles, and forming interagency ties (ibid, p.61).

Social capital is defined as the expectations for an action within a collectivity that affects the economic goals and goal-seeking behavior of its members, even if these expectations are not oriented toward the economic sphere (ibid, p.241). Based on World Bank Working Paper no.18 (2004), social capital is most frequently defined in terms of the groups, networks, norms, and trust that people have available to them for productive purposes. The survey tool in this paper has been designed to capture this multi-dimensionality.

Migrants develop and maintain social ties across different locations. The potential embedded in these social relations to yield other resources is part of social capital. This is what allows the creation of networks that facilitate the flow of information, skills, financial resources, values, ideas, and so on (Faist and Fauser, 2011)

In general the framework of the research can be analyzed by using the diagram below:



Levitt acknowledged that normative structure refers to ideas, values, and beliefs. They include norms for behavior, notions about family responsibility, principles of neighborliness and community participation, and aspirations for social mobility. These structures shape the system of practice. These include how individuals delegate household tasks, the kinds of religious rituals they engage in, and how much they participate in political and civic groups.

Some valuable findings of the social remittances to confirm with Levitt's were identified in several aspects, namely:

a. The Social Relationships

The return migrant has changed the structure of social relations among the nuclear family, the extended family, and the community. In some households there was a shift division of labor, economic allocation and the allocation of power among husband, wife, and children. It was seen that the traditional child rearing inseparable from the tasks of the wife, were overcome by replacing their role by the husband, parent or siblings. Some return migrants become role models for girls who want to improve their lives. The shifting of return migrant roles has

increased their capacity as decision makers in the family.

In term of relation with spouse, most women had fewer powers and depends entirely on their husband for economical support and household decision but after migration, women are likely to be empowered and independent. Some women prefer to maintain typical gender relations by returning home and depending on their husbands. Return mother were demanded to readjust this situation on implementing their production and reproduction functions. The social relations with parents, families who stay behind are clearly the weaker partners in the interdependent relationship that arises between migrant and non migrant. The shift in the power dynamics of the family and decision makers is being renegotiated.

b. Education

The reviewed literature showed that migration tends to increase dropout rate and discourage student from going on to secondary school. In Indonesian case, due to the violence and trauma experienced by overseas migrant, women expected their children to achieve education and settling job in the home country. As women worked as low skilled labor, they expected children to improve their knowledge better than their parents.

Interestingly, the finding in education showed different phenomenon compared to Levitt's description to what happen to Latin American's migrants. Levitt findings showed that migration tended to increase dropout rate and discouraged students from going to secondary school. In contrast, due to the violence and trauma experienced by overseas Indonesian migrant women, they expected their children to achieve education and settle in jobs in their home country. As women worked as low skilled labor, they expected their children to study more in order to get better jobs with or without migrating overseas.

c. Gender Values

The migration has made women more independent on their economic power and decision capacity. Those who remained behind were of different minds about their response to these new dynamics. Some men and women clearly felt that men should continue to tell women what to do.

Gender specific values in the host countries studied such as *men as breadwinner, women as the queen in the household, heaven is on the bottom of mother's foot*, or *wife is the husband's companion* regarded as normative values of how women are

demanded to behave in traditional Muslim values. These thoughts clashed with the euphoria of international migration. Normatively, the returning women studied were required to assume gender typical values, but in fact unemployment, poverty, and survival strategies of the households made these women take a greater part in the public domain.

d. *Economic and Empowerment*

The return migrant has changed the image of women as domestic workers into high-value jobs that can improve the condition of her family. Higher living standards are only possible because so many villagers continue to migrate. Those who remain behind have become dependent upon. Women with some vision and planning skills were successfully maintaining their economic conditions and self determining on decision making. The successful return migrant has increased their family's prosperity by greater assets, knowledge, and knowhow gained from working abroad. The cultural insight and working ethic has improved. The return migrant possessed more control over financial resources, technology, production inputs and decision making in the household. There were also unsuccessful migrants for whom the life upon return was very similar to the one before they left.

e. *Social Capital*

Social capital is explained by Levitt as those expectations for action within a collectivity that affect the economic goals and goal-seeking behavior of its member, even if these expectations are not oriented toward the economic sphere. In the research, this can be recognized on the feasibility of return. Returnees fall into two broad groups, namely those who have difficulties to put long term income generating strategy into place and those who own more knowledge, resources and successful at returning. The social hierarchy can also be compared regard to the nature of society which was basically divided into a two-class society consisting of a small landed or business-owning elite and a large class of landless farm laborers. After migration, many additional type of works and classes are increasing, especially the entrepreneurial activities.

The emerging institutions at the village show the change of social order, such as cooperative institutions, NGOs, and so forth. These institutions and networking work hand in hand to overcome the migrant's problems. Many returnee women who were actively involved in particular strategic movements during their overseas, continued to work towards their goals once they returned home, such as Indonesian Migrant Worker Union and Citra Kartini Cooperative.

The return women, who were actively involved in particular movement during their overseas migration and critically possessing strategic visions, continued this goal once

the return home. They initiated to collect other return migrants and generated economic supported group among them. It also developed to be the social networking support. This pattern has positively contributed to development. A cooperation institutions in Malang Regency, owned by return migrants has more less 2000 member and stimulate economic activities in the regions, such as remittance management, schooling, retailing, technology educations, and even social counseling. These institutions and networking are regarded as capitals which have positively contributed to development.

Social remittances have explained some rational choices which conducted return migrant women behaviors. When return migrant women considered as potential group, which is regularly involved their society, and others participate periodically, their combined efforts will give particular impact to development. Taken together and over time, these activities constitute a social force with tremendous transformative significance that can modify the economy, values, and everyday lives of entire regions. Social remittances play a key role in changing the society. This may challenge the related stakeholders to grasp this idea into development.

5. Novelty

Remittance is mostly associated with economic contribution. Most debates about migration and development privilege the economic. It is not surprising that economic remittance has given big impact on increasing household income, influencing the exchange rate, and creating capital stock in most sending countries. Unfortunately, the study how the remittance can be assessed culturally and socially has not been discussed a lot. Most debates on migration and development privilege the economic at the expense of the social.

6. Conclusion

The main conclusion of this study showed that the return migrants are the important actors because they contribute to the remittances that they bring from working overseas. In addition to sending money, migrants and return migrants remit the new pattern of value, behavior, and practices from their experiences overseas. Return migrants have competency and capacity to perceive how the international labor migration may link to the development.

The respondents of the research were explored to rethink the relations between international migration and development. Return migrants perceived their low bargaining position in the job market. There seems no recognition from the receiving countries to their existence. Some recommendations are offered to overcome this condition. **First**, the requirement of self determination and skill among migrant

workers are important because to works successfully, skills and a sense of work quality are necessary. **Second**, the expectation on domestic employment is increasing, therefore it needs any stakeholders involvement such as the job opportunities provided by government, skills and knowledge quality provided by educational institutions, and so on. **Third**, the policy and credibility on sending Indonesian women migrant workers need to be improved.

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Lost in Translation: First Year Physical Education Teachers' Experiences with Teaching Sudanese Refugee Students

Christopher Francis Baldwin

Australian Catholic University, Australia

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Abstract

The purpose of this study was to analyse and explore the experiences of eight first year physical education teachers who have taught Sudanese refugee students. Interviews were conducted at the end of each participant's first year of teaching. The findings of this study highlight the vast different learning styles of students from Sudan and the strategies that these teacher's trialled and incorporated into their lessons in an attempt to minimise the disruptions that they experienced when first introduced to the students. The results of this study, together with information from the literature, suggest that the training and education of teacher's in Australia must incorporate strategies for teaching students from different backgrounds, cultures and living situations to better facilitate the inclusion of them in school based activities and learning.

Beginning physical education teachers

In their first year, physical education teachers become aware of the many complexities and difficulties that are involved in the teaching profession. Not only must they overcome these, they must also grapple with the additional intricacies that are part of being a first year teacher beginning their teaching career (Hardy, 1999).

Physical education teacher's induction into the teaching profession differs slightly from that of other teaching subjects. Physical education may be less stressful because in previous research there has been no mention of the reality shock that tends to accompany the experiences of other subject classroom teachers (Sparkes, Templin, & Schempp, 1993; Thevenard, Haddock, Phillips, & Reddish, 2009; Tinning, McCuaig, & Hunter, 2006).

The initial years of teaching for beginning teachers is extremely important in their development of knowledge and understanding in the classroom environment (Mtika, 2010). These early years in a beginning teachers career determines whether they will remain in the profession, as well as what kind of teacher they will become (Thevenard, et al., 2009). Researchers have suggested that the first years of a teacher's career are actually learning years for the teacher out on the job (Hardy, 1999; Ibrahim, 2012; Thevenard, et al., 2009).

Research has suggested that beginning teachers are not always provided the necessary support they need and as a result can suffer from reality shock which can lead to the premature departure of them from the teaching profession (El baz-Luwisch, 2005). "Beginning teachers have real learning needs that cannot be grasped in advance or outside the context of the classroom" (Ibrahim, 2012, p. 540). Classroom management, motivation of students, juggling workload, assessment and marking, reports, parent interviews and dealing with individual difference are just some of the day to day tasks that today's teachers have to deal with.

Teaching in a global world; the new challenge for beginning teachers

The ever increasing migration rate along with ever increasing numbers of refugees seeking asylum and residency status in countries free from war and oppression has meant that education systems across the world have had to become more accommodating for students attending schools from non-native backgrounds (Knoblauch, 2001). Whilst many schools and governing institutions of schools have begun to make arrangements and put policies and procedures in place for dealing with these students, teacher training education has maintained its traditional stance of teacher training meaning teachers are not trained and equipped to deal with students that arrive in their classes from these often traumatic backgrounds (Australian Government, 2007).

In Australia, a country that has a history of migration (Australian Bureau of Statistics, 2008), education has tended to be 'inter-cultural' (Turner & Fozdar, 2010). Much existing research has focused on ethnic minorities from non-refugee populations (Turner & Fozdar, 2010). Little or no research has attempted to look at refugee populations and how the educating of students from refugee populations is carried out, or how teachers dealing with refugee students manage teaching these students the

curriculum. Turner and Fozdar acknowledge that low levels of literacy, significant cultural difference and possible trauma related to displacement experiences make educating refugee students quite difficult and challenging for teachers, schools and their fellow classmates alike.

Since 1996 Australia has resettled more than 20,000 Sudanese born individuals (Australian Government, 2007). Many of these individuals have been students; some of which enter schools throughout Australia. Their traumatic upbringing in Sudan where many have witnessed atrocities performed on parents, siblings, friends and even strangers present the teachers who will be teaching these students with great challenges. This paper looks at eight beginning teachers in Sydney, Australia who teach physical education in primary and secondary schools. Their experiences with teaching Sudanese refugee students and the challenges and triumphs they experienced during their first year of full time teaching forms the basis for this research.

Purpose of the Study

The purpose of this study was to understand how first-year physical education teachers engaged with Sudanese refugee students in their physical education lessons. The questions that guided this study were as follows:

1. How do physical educators, who are in the first year of their teaching deal with students from different cultures, specifically Sudan in this study?
2. What onsite measures are in place to assist first year teacher's deal with the different dynamics of learning styles present in students from Sudan?
3. How do first-year physical educators describe their experiences with teaching Sudanese refugee students?

Method

The primary source of data for this study was interviews conducted with the new beginning teachers at the end of their first full year of teaching.

In-Depth Interviewing

The researcher carried out multiple open ended questions with multiple interviews used (Alvarez & Urla, 2002; D. Kvale, 1996; S. Kvale, 2007). All interviews were digitally recorded and transcribed. The raw transcribed interviews constituted the primary data set for subsequent analysis (Berg, 2009; Clandinin & Connelly, 1994; Elliott, 2005; Rubin & Rubin, 2005; Sparkes, 1995; Wengraf, 2001).

Each of the beginning teachers was interviewed twice at his or her home or a mutually convenient and acceptable location during the summer schools holidays (December – February). The purpose of the first interview with the beginning teachers was to establish autobiographical contexts for understanding the participants' reasons for becoming a physical education teacher, their experiences during their teacher training course and their goals for the next twelve months with respect to their teaching. The information collected in this first interview informed lines of questioning for the follow-up interview.

At the end of the first interview, the second interview was scheduled to be conducted approximately two to three weeks later which allowed enough time for the first interview to be transcribed and a preliminary analysis done. The second interview concentrated on what each participant's first year as a physical education teacher was like, and how their teaching had to 'change' to enable the inclusion of the Sudanese refugee students in their classes. Questions included the following:

- Moving on to your teaching this year, tell me about your first day/week of the school year. How did you come to be placed in this school? Were you aware about the schools intake of Sudanese refugee students?
- Compare how you taught in the beginning of the school year with how you teach now. How did you learn to teach the way you do now? Why did you change? or, What allowed you to maintain some of your teaching style throughout the year?
- Upon reviewing your first year of teaching and the University teaching course that you recently completed, do you feel like your teacher training adequately prepared you for teaching? Why/why not?

This is only a brief sample of the questions used in the interviews with the beginning teachers. A number of additional questions were asked to elicit responses from the participants that addressed what their actual first year of full time teaching was like and how as teachers they were called upon to modify and adapt their classes to cater for students needs.

Participants

The participants for this study were eight physical education teachers who completed their first year of teaching during the 2012 school year. They taught full-time at the primary or secondary school level in Sydney, NSW, Australia. The physical education teachers were selected to ensure representation by gender and level (primary and secondary), public and private, small and large schools. Recruitment of participants for the study was done by contacting physical education teacher educators and school administrators throughout Sydney, Australia.

A list of potential participants who fulfilled the requirements noted above was generated and then used as the basis for the selection process.

Table 1 Participants' schools and number of refugee students enrolled at their school

| Name | School description | Number of refugee students in school |
|---------|---|---|
| Damien | Catholic primary school in Auburn, NSW | 28 students, school's enrolment totals 311 |
| Ebony | State public primary school in Campsie, NSW | 19 students, school's enrolment totals 338 |
| Grace | Catholic primary school in Enfield, NSW | 30 students, school's enrolment totals 299 |
| Joe | State public high school in Sydney, NSW | 71 students, school's enrolment totals 882 |
| Lyndal | Private high school in Gosford, NSW | 45 students, school's enrolment totals 603 |
| Matthew | Private high school in Hunters Hill, NSW | 33 students, school's enrolment totals 1100 |
| Peter | State public high school in North Sydney, NSW | 63 students, school's enrolment totals 1209 |
| Sarah | Catholic primary school in Wollongong, NSW | 89 students, school's enrolment totals 336 |

Working with the Data

The transcripts were read and carefully reviewed for thematic elements that were common to each participant's case. Profiles were then created that described how their particular experiences in their schools shaped their first year of physical education teaching.

The transcripts were divided into data units for each research question which represented a single point of information pertaining to each individual teacher's experience in their school. The transcripts were then reviewed again to identify thematic elements that appeared to be common across individual cases (Clandinin & Connelly, 1994; Miles & Huberman, 1994). Categories, themes, and tentative hypotheses about relationships were developed as the intermediate products of inductive reasoning (Buchbinder, 2011; Mello, 2002; Seale, 2003).

Trustworthiness

To ensure trustworthiness of procedures used while conducting this project, two methods described by Guba and Lincoln (2004): peer debriefing and member checking were utilised. The peer debriefer, with whom I met biweekly throughout the period of data collection and analysis, had access to all the data that were collected, this included research logs and interview transcripts. The central purpose of periodic meetings with the peer debriefer was to ensure that the findings were grounded in the data, rather than in my own expectations and dispositions. Member checks were possible in that follow-up interviews were conducted. In addition, participants were given their own profiles to review and were invited to provide written feedback.

Analysis and Interpretation of Data

The analysis and interpretation of this study are reported in two sections. The first section provides profiles of two of the eight teachers and how their particular schools operated and supported or didn't support their first year of teaching. The two selected participants to be reported on marked the width of the spectrum of the beginning teachers' experiences in their first full year of teaching. One teacher, Joe, was challenged daily and found his first full year of teaching frustrating and tiresome. Sarah, the other teacher, had lots of support and actively shaped aspects of her classroom teaching. The second section of the paper summarizes the themes common to all participants. Collectively, these are brought together to relate the purpose of the study and respond to the research questions.

Teacher profiles

Joe

Joe's first year of teaching took place at a State Public high school in Sydney. He taught health and physical education to students in years 7-10. The isolation and lack of support he encountered from his fellow colleagues in his first full year of teaching made his ability to plan engaging and innovative lessons for his students quite difficult. Whilst Joe acknowledged that he was assigned to the "beginning teacher support team" overall, he had a difficult time trying to implement a curriculum that would move students toward his goals of knowledge and skill acquisition for lifelong participation. The problem was manifested even further by the inclusion in his classes of three Sudanese refugee students who Joe happily admitted he had no idea of how to teach them and engage them in his lessons.

Joe felt confident as he began his first year of teaching as he felt that his student teaching experience had provided him with the opportunity to become acquainted with the school routine as well as the necessary lesson planning and behaviour management. As a student teacher, however, Joe had not had to deal with faculty peers, parents, and administrators, as well as classes that had students with extreme learning needs. In addition, he had not been responsible for the curriculum, and above all, he had not been alone in a classroom environment.

Joe was not completely alone in his first year of teaching. Along with the beginning teacher support team, he also met regularly with a colleague teacher, roughly once a fortnight. John, a senior physical education teacher, taught at Joe's school, and was assigned as his mentor teacher for the year. Both teachers' taught lessons together on Wednesday and Fridays which allowed Joe to develop some confidence in the planning, preparation and execution of physical education lessons.

Joe's biggest challenge in his first year of full time teaching was dealing with students from non-English speaking countries which is something Joe had not had to do at all during his teaching practicum. Specifically now, Joe was in a school that had a student's population of 882 students of which 71 were classed as refugee students. These refugee students had little or no education background, nor did any of them understand the concepts of sitting in a classroom and listening to the teacher talk; now Joe was suddenly responsible for three of them in his classes, and he needed to ensure that they were learning and participating in the lessons and not distracting or interfering with his teaching or the learning of the other students.

Health and physical education in the school Joe is teaching at is not a strong priority as he commented during his interview. "Some of the other teachers, the principal, and even the parents do not place a lot of emphasis on physical education which can often make planning and preparing for lessons difficult". Joe discussed how in his beginning teacher support group he has made mention of the difficulties in catering for the Sudanese refugee students in his class. He discussed how other beginning teachers in the group have also discussed their difficulty in engaging them in classes as well.

I was frustrated at my lack of success in engaging and teaching these students in my health and physical education class, so I brought it up at our meeting and it turned out I was not the only one. The deputy principal who chairs these meetings however was not very helpful and became dismissive of our problems citing that we just need to get a grip with teaching and get the job done. We were like, but we have not had any training or professional development in how to teach these students.

Joe fought very hard to maintain his goals during his first year of being a physical education teacher. Although he wanted his students to enjoy physical activity like any teacher, he also wanted them to learn something in his classes, not just play games and his fear was that because he lacked the skill to teach and engage the refugee students that were in his class, his classes turned into just mere games. Joe also lacked the ability to communicate with the parents of the Sudanese students. When he called parents at home to discuss problems with what their child was doing in class, he was confronted with a language barrier that he or the school could not break, giving further rise to frustration.

Joe's experiences were further compounded by the Sudanese students in his classes' inability to concentrate on the task at hand. Joe commented that:

I would often be giving instruction to the students on technique, such as how to hold a cricket bat, or how to dribble the basketball and the Sudanese students would be talking to each other or looking elsewhere...It was very off putting for me, I would chat to them and tell them to pay attention but a minute or two latter they would be doing it again.

Despite the negative experiences including the lack of training, professional development, professional support from the school and the inability to communicate effectively with parents Joe persevered with his efforts to provide what he considered to be a sound physical education program. He indicated that whilst it has not been easy, and he has often gone home at the end of the day wondering what I had achieved, he felt that he had made sufficient progress in getting to know and understand the Sudanese students and the experiences that they bring to the classroom. He discusses that:

It's a trust thing, it took a long time to establish with the students, and partly because for a lot of them they come from such a traumatic background, and are used to running and hiding. PE and sport seems to be a great 'break out' time for them to play and have fun, something I imagine they have not had a lot of opportunity to do in their lives.

Asked about his thoughts on his education and being properly trained to deal with these types of students Joe remained fairly positive and upbeat about his course:

Look on one hand it is easy to say that Uni did not properly prepare me for the world of teaching but then that is true of any job; it's not until you put there that you really learn the ropes and start to gain valuable experience and knowledge about what you need to do. It would have been nice to have some knowledge and background on what to do and how to engage these students but Uni's can't prepare you for everything!

Sarah

Sarah taught physical education to students in Grades K-6 at a Catholic primary school in Wollongong. Sarah's experiences during her first year were in stark contrast to that of Joe. The facilities at the school were amazing for a primary school; two large gymnasias, a 33 metre swimming pool, two tennis courts, two outdoor basketball courts, and three spacious multi-purpose playing fields. The facilities, in conjunction with the variety of equipment available, allowed Sarah to teach virtually any activity that would be appropriate for primary-age school children.

Sarah had freedom to design her own physical education program. Sarah explained that as a result of her autonomy she had found it easy to adapt her teaching methods and goals of cooperation, skill acquisition, and enhancement of students' self-esteem to her new environment. Sarah was also able to address the Sudanese refugee students in her classes quite well. Unlike Joe, who taught 15 of the 71 Sudanese refugee students that attended his school, Sarah as a primary physical education teacher would teach all 89 Sudanese refugee students across the week at her school. The school with which Sarah was teaching was well prepared for the specific and special learning needs that the Sudanese refugee students would require. A specialist Sudanese teacher was placed at the school all week; this 'tribal' figure was a member of the local Sudanese community and was a contact between the school and the parents, as well as doubling as a translator for both the students and parents when communicating with the school and teachers.

Sarah, being a physical education specialist in the school, was the only PE teacher present. She acknowledged that at times this was difficult but nevertheless made good friends and contacts in the other teachers that were teaching at the school. Sarah added:

It could get a little lonely sometimes with no other teachers to talk to on the subject matter of PE; but most of the time it was fine; and there were always an abundance of students willing to come up and chat and want to play.

Whilst there were good support structures in place within the school and with the aid of a local Sudanese community liaison officer also placed in the school, Sarah acknowledges that she did have some challenging moments. One such challenge

which she recalls quite freely was a lunch time playground duty that she was doing and a large school yard fight broke out between a number of the older Sudanese and Lebanese boys on the playground. She felt quite intimidated at attempting to step in a break up the fight as not all of the boys were small and tiny. She comments that:

This one day when I was on playground duty I was quite scared and intimidated for both myself and the boys fighting in case one of them got seriously hurt. Attempting to move in and break up the fight was also quite confronting.

Asked about her thoughts on her education and being properly trained to deal with these types of students Sarah was very complimentary and praise worthy of her pre-teacher education training:

I really enjoyed my Uni course and I believe that it properly prepared me for the students that I would be teaching. It gave me a great core knowledge set that of course I have added to since beginning teaching, but I was never led to believe that my Uni course would provide me with all of the answers....and guess what it didn't! But I believe it provided me with the necessary skill set to get my job done and done well!

Beginning teacher's common experiences of all participants

Each of the beginning teacher's described how throughout their first full year of teaching physical education in the various schools they all encountered difficult and confronting moments not only with the Sudanese refugee students in their classes, but also the mainstream white Anglo-Saxon students. Though each case was different, there were some similarities that occurred amongst all eight teachers. Six factors were identified as being the most significant characteristics common to each of the beginning teachers: the physical education facilities, the presence or absence of teaching colleagues, the scheduling of physical education classes, the community environment, communication amongst staff, students and parents and the actual students. In addition to the six significant factors that were explicitly identified by the participants as influential during their first year of teaching, important contextual conditions could be inferred from close examination of the interview transcripts. Unarticulated factors (Clandinin & Connelly, 1994) were implicit in many of the stories, and some of these appeared to be sufficiently common to the first-year experience to represent additional themes of influence in the process of learning to teach physical education in schools. These unarticulated factors included: the role of physical education in the schools, the teachers' sense of efficacy, the teachers understanding of refugee students, and the realities of teaching in school versus what the teacher expected whilst at University (see Table 2).

Table 2 Common school factors to all participants

| School factors | Description |
|--|---|
| <i>Most significant</i> | |
| Physical education facilities | Teaching areas affected activities that teachers could teach |
| Presence or absence of colleague teacher | Colleague present had mixed views, no colleague present enjoyed the freedom, but also would have liked someone to guide them and let them know they were doing things right |
| PE class schedule | Not enough time, poor timings throughout the day |
| Community environment | Lack of local parks was an issue for some of the teachers |
| Communication | Poor levels exhibited between staff, students and parents, lack of understanding of teachers by students and parents |
| Students | Not used to education structured environments, required more intimate support to become accustomed to school routine |
| <i>Unarticulated</i> | |
| Role of PE in schools | Some schools viewed PE as not an important subject, teachers often had to advocate the need of the subject and its importance |
| Teacher's sense of efficacy | All of the participant teachers felt some form of success in their first year |
| Teacher's understanding of refugee students | No experience or knowledge of how to deal with and teach refugee students, a need of training and professional development to assist teachers in feeling more confident and comfortable |
| Realities of teaching versus expectations of teaching whilst in University | Reality of a lot of 'on the job' training was acknowledged by the participants |

The themes in Table 2 summarise the results of this study and respond to the research questions. The discussion that follows does not attend to the themes individually, but focuses instead on several subtle points within the themes.

These beginning teachers were characteristic of many first-year teachers in that they were expected to perform the same duties as a seasoned veteran in the education system. Although many of the participants were assigned mentors, the participants found these mentors to be of little help beyond learning the daily routines of the school.

Also, like other beginning teachers, most of the novices experienced "reality shock" (Ibrahim, 2012), but in the case of these beginning teachers there was an additional cultural shock with the teaching of Sudanese refugee students. Nearly all participants reported that they had not anticipated such inadequate facilities, their rigorous teaching schedules, or the lack of support received from supervisors and colleagues especially in terms of how best to include and cater for the diverse learning needs of the refugee students. Moreover, with few exceptions, their stories indicate that they were not prepared to confront the social and cultural forces within the school community with respects to the refugee students.

The nature of physical education and its consequent place within the school and wider community clearly indicated to a number of the beginning teachers that they were teaching a subject which is not regarded with the highest of status. In terms of facilities, a number of the teachers were forced to conduct their classes in areas and with time allocations that were less than adequate for instruction and were forced to do so with fewer resources than would be considered minimally adequate in the classroom. Sarah seemed to be the only teacher in the group who had adequate equipment and facilities to conduct her lessons. The remainder spoke quite poorly of their PE setups. Grace's situation exemplifies her belief that facilities strongly influenced her curriculum and her goals for her students. Grace's reactions to her facilities were typical of many participants in this study:

The conditions in the school for teaching and assessing physical education are a total joke. I have a lopped sided basketball court that is on a 45degree slope, a small cow paddock oval that I am not allowed to use as it seems there may have been asbestos buried underneath it, and I have a hall that swelters in the heat because there is no air-conditioning, not to mention the hand me down bats and balls I have which predate World War II.

Mixed messages were reported on regarding the presence of a colleague teacher. Some of the participants who did not have a colleague teacher present indicated that this allowed great flexibility for them as a teacher in how they taught and programmed their classes. This absence was generally reported in primary schools. These teachers who did not have a colleague present also indicated that it would have been nice for someone to let them know what they were doing in class was correct. The participant teachers that did have a colleague present were a little uncomfortable as they indicated it was like they were back doing their practicum's and needed to be supervised at all times. Matthew indicated his feelings on a colleague teacher being with him during some of his lessons:

It was kind of a catch twenty-two situation. On one hand I didn't like it because I am a qualified teacher now and don't need to be supervised at every point of my lesson, while on the other hand it was handy to have someone there at different times to support me and back me up, so yeah, difficult to give a definitive positive or negative attribute to it.

The scheduling of classes while not a hugely negative area for the first year out teachers still proved to have some frustrations. Generally these surrounded the lack of communication surrounding the timing of classes. This tended to be an issue more so with the high school teacher's who taught a combination of theory and practical based lessons. The primary school teacher's did not have a choice in classes as they taught practical lessons all day. The community environments too were not a hugely negative experience for the students; however one participant did mention that this was the worst part of her PE lessons when taking the students down to the local park. Ebony commented that:

Taking 12 year olds down the road to the park is hard enough at the best of times, combine this when you have a group of students that have never been able to walk down the road in their own country for fear of being chased or attacked and you can imagine that a simple five minute walk can end up taking the better part of the entire lesson because they stop at every house to look and stare and talk.

Communication proved to be a critical issue that all of the beginning teachers identified needed to improve in the schools they were teaching in. Whether it was communication between colleagues and themselves, between students and themselves or parents and themselves overall the participants felt that this was an area that let them down considerably. The participants responded to these problems in ways that reflected individual skills and dispositions, as well as the unique features of each school. For example, conversations in the interviews often touched on the participants' need to feel some sense of success in their day to day exchanges and encounters with the staff and students. At many of the schools, however, it was difficult to sustain any such practical sense of accomplishment due to the high degree of non-English speaking background that many of the refugee students brought to the schools.

The participants reported consciously altering both their teaching behaviours and their teaching objectives so that they would be more congruent with what they perceived to be the norms of their schools. Indeed, all of the participants who reported having to adjust their teaching styles and goals also indicated the firm belief that if (or when) their situation changed they would (and could) return to their earlier teaching methods.

The participants' commitment to the teaching profession was a constant powerful message that came through the interviews, despite the many challenges that the beginning teachers faced. Joe acknowledged that his intentions to keep trying to get the best out of all of his students:

It's been a long and challenging year...there have been times when I have felt like it wasn't worth it, but overall I feel as though I did achieve something...and it can only get easier from here!

Joe's sense of efficacy in his teaching was not attained through his students' level of achievement and participation, but rather by his feeling that he had made a difference

in their personal lives and instilled some thought of the importance of physical education.

Many of these first-year teachers were able to look beyond the limitations of their schools, their University education and their experience and feel at least some sense of having done worthy work. Although it may have been necessary to modify their initial intentions and plans of what would work in the classroom with the students, many of these teachers were able to look forward to a second year in the same school with a degree of optimism. There were however, some teachers that believed the cultural and social climates and difficulties that they encountered in their first year within the school and community were just too difficult and would not improve. Those teachers decided not to leave teaching, but to leave their present posting in search of a school that might provide better support.

Conclusion

The results of this study, when added and compared to the information provided in the literature, suggest that despite some modest efforts, many primary and secondary schools provide inadequate support for beginning teachers. First-year physical education teachers, like other beginning teachers, still learn the ropes alone, especially if they are employed as a PE specialist in a primary school. Moreover, the subject matter of physical education presents unique problems in accomplishing the transition to professional teaching because of its needs on equipment, timetabling and its constant need to advocate itself against other key learning areas (Hardy, 1999; Sparkes, et al., 1993).

Additionally, these beginning teachers have also had the challenge of integrating and including a number of Sudanese refugee students into their classes, students that for many of them had never heard of or came across and certainly did not receive any training on how to deal with them in their University degree.

The study provides insight into how eight first year physical education teachers engaged with Sudanese refugee students in their physical education lessons. At the time of the last interview, six of the participants had intended to remain at their schools. Ebony and Joe had sought and found employment as physical education teachers at other schools. Despite their struggles to reconcile what was promoted in their teacher education programs with what was possible in their schools, all participants wanted to continue teaching physical education.

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*An Approach to Enhance the Use of Soft Landscape Principle's to Save Energy in
Housing Projects in Saudi Arabian Cities*

Talal Hassan M. Hammadi,

Umm Al- Qura University, Saudi Arabia

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Abstract

The purpose of this paper is to encourage the application of landscape principles as an approach to save energy in housing projects in Saudi Arabian cities. The ultimate goal is to increase the decision makers' awareness and appreciation of the importance of soft landscape principles to reduce energy consumption. Many concepts and guidelines are presented as well as a comparative studies between some advanced cities such Japan, Hong Kong USA, and Australia, whose findings would assist environmental designers to enhance the microclimate in and around residential schemes. However, short notes on some desert landscape principles will be briefly mentioned due to their importance in overall urban fabric of the city components. That is to say, this paper will addresses importance of landscaping as "a cost-effective", and yet an eye-pleasing ways to lower energy bills. And that can be achieved through utilizations of planting trees, shrubs, vines, grasses, and hedges, as well as the use of some native plants and hard landscape elements .This paper concluded the importance of landscape architecture as a crucial mean to mitigate microclimate environment around and within housing projects, in regarding to climate, Site, and design considerations', through the application of landscape strategies of various climactic regions of Saudi Arabian environment.

A properly designed landscape can make a home significantly more energy efficient and reduce air pollution, including greenhouse gases. It can also cut heating and cooling bills by as much as 40 percent ... An energy-conserving landscape utilizes trees, shrubs, groundcovers, and vines to provide cooling summer shade as well as insulation against heat loss in winter.¹

Introduction

Saudi Arabia had witness massive developments in almost all aspect of cityscape. Due to the rush housing projects demands, which resulted in producing inadequate residential schemes, that's lacks public recreational areas, in appropriate streetscape and dangerous traffic systems. Among those vital problems was the lack of green open spaces, more energy consumption. From examining some local housing sites, the researcher notes the following negative aspects, such as:

- 1- The lack of using sufficient soft landscape materials near or around housing projects.
- 2- Inappropriately, most of traffic roads median planted with trees, shrubs and flowers.
- 3- No enough or continuous pedestrian walkways.
- 4- Roadside pavements planted with planters in the middle of pavements which force and exposed pedestrian to walk in dangerous and inadequate automobiles traffic circulation's system.
- 5- Some public gardens were poorly planned and designed; even more no shade trees were provided.
- 6- Some housing areas were overcrowded.
- 7- Lack of children playing areas almost in all housing areas.
- 8- Some remaining parts of open spaces of traffic roads were poorly planned and designed as a public gardens,
- 9- The use of public car parking as recreational areas.

It seems from above mentioned points, that some housing projects were imperfectly planned and designed, which cause "Gray Environment". These formulate sick buildings and consumed huge amount on electricity for air-conditioning. Therefore, this paper can be considered as an approach to solve to, a large extent, the above mentioned points through the use of "*soft landscape design*" to save energy and in return, promote health, convince and welfare of the society. The following photos might represent- to some extents- the actual style of some Saudi housing projects, figure1.



Figure 1: Example of some housing sites in Saudi Arabia: Almost no soft landscape was provided which will increase the use of energy for cooling or heating of dwelling units.

No doubt, any housing project that was not so fully utilize the advantages of soft landscape principles will be inadequate, and might increase deterioration of local environment. Unfortunately, some Saudi housing schemes were not adopted any landscape solutions, due to lack of landscape architects within the initial planning and design process. Therefore, this paper will highlight the importance of landscape architectural professional as the main discipline to save environment and to promote health and convince for all citizens of Saudi Arabian environment.

Soft Landscape Plantings for Energy Savings

The high cost of home heating and air conditioning encourages efforts to reduce housing energy consumption. Although outdoor landscape plants are pleasing in themselves, they can also play a large part in controlling energy use indoors. Therefore, in addition to the beauty of landscape plantings, it is important to consider the entire landscape plan in relation to energy conservation in the home. Figures 2, illustrates how could soft landscape design increase the attractiveness of the housing projects.



Figure 2: Soft landscape design can help save energy. Landscaping is an easy and economical way to increase the energy efficiency of the constructions, enhance the appearance and value of a property, and provide screening for privacy. Although outdoor landscape plants are pleasing in themselves, they can also play a large part in controlling energy use indoors. Therefore, it is important to consider the entire landscape plan in relation to energy conservation in all housing schemes.

Winds and windbreaks

The use of windbreaks for winter climate control around the household can reduce winter fuel consumption by 10 to 25 percent. Windbreaks can reduce wind velocities as well as deflect wind movement. The effectiveness of a windbreak is determined by the number of rows of plants, type of plants, height of plants, prevailing wind speeds and proper maintenance. Most effective windbreaks are planted in U or L shapes. Where there is plenty of space, a windbreak should be planted to extend about 15 meters beyond each corner of the area to be protected. The most effective area of a windbreak is at a distance from four to six times the height of the trees, depending on wind speeds. Points to evoke in development a windbreak: Figure3.

- They are most effective when plants branch to ground level.
- The wider the planting, the more effective the windbreak.
- When planting more than one row, stagger the plants.
- When using only evergreen plants, two or three rows are adequate.

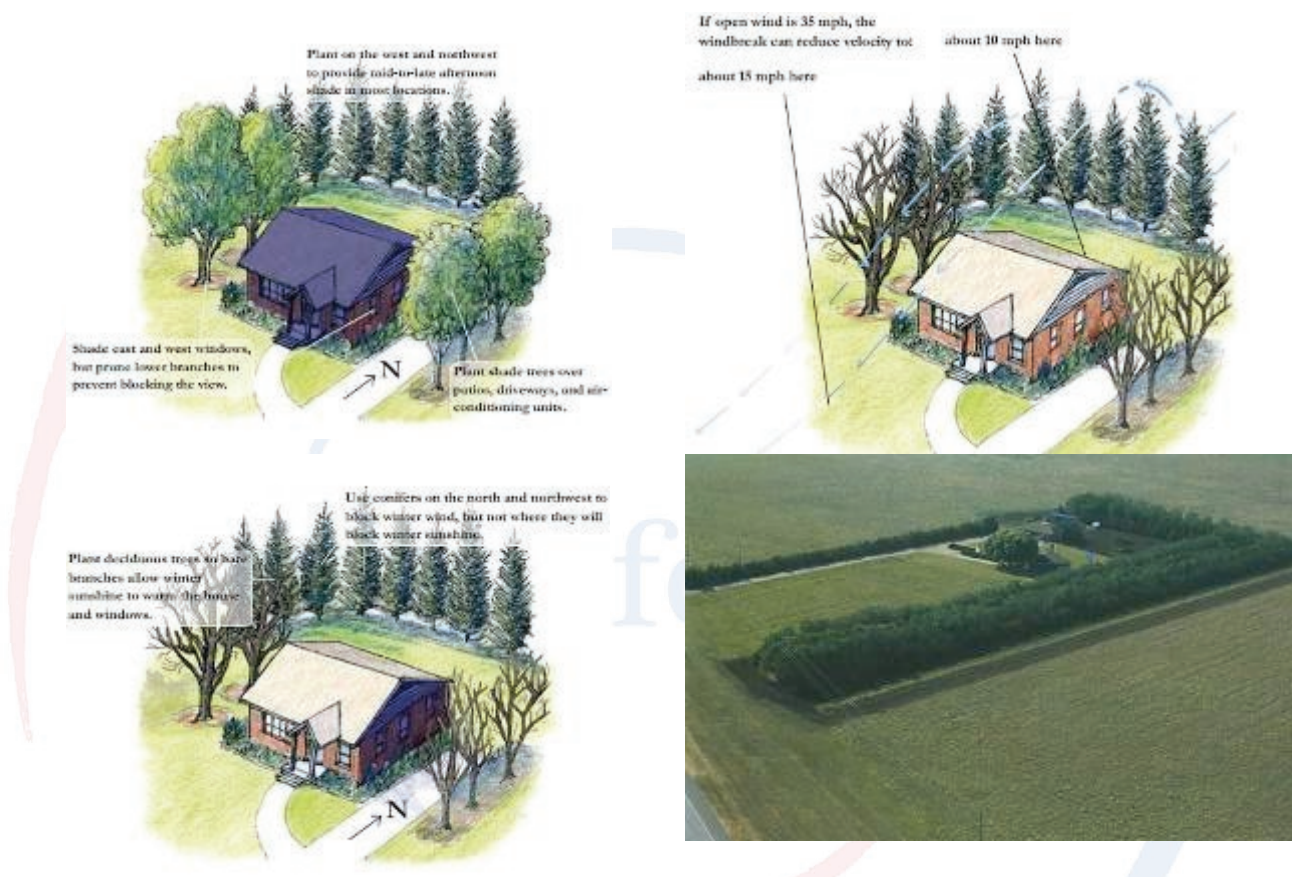


Figure 3: Trees provide many benefits to all of us, every day. They provide cooling shade, block cold winter winds, attract birds and wildlife, purify our air, prevent soil erosion, clean our water, and add grace and beauty to our homes and communities. Did you know that just three trees properly placed around a house can save up to 30% of energy use? This is according to the U.S. Forest Service Center for Urban Forest Research.²

Diverting air movement

Although windbreaks function primarily by reducing the impact of the wind, they also shift air movement. The ability of plants to divert air streams provides the greatest benefit during the summer months. Increasing the air flow through streets and open spaces within the urban fabric, and in playgrounds, patio and other living areas that will improve summer comfort, and reduce the need for air conditioning. Garden structures such as screens and fences may influence air movement, but plants add a cooling factor as water evaporates from moist leaves. Place plants to be used for channeling breezes around the house in that direction away from the home. Deciduous trees on the southwest side of a house reduce indoor air temperature in summer and increase indoor air temperature³ in winter. Figure 4.

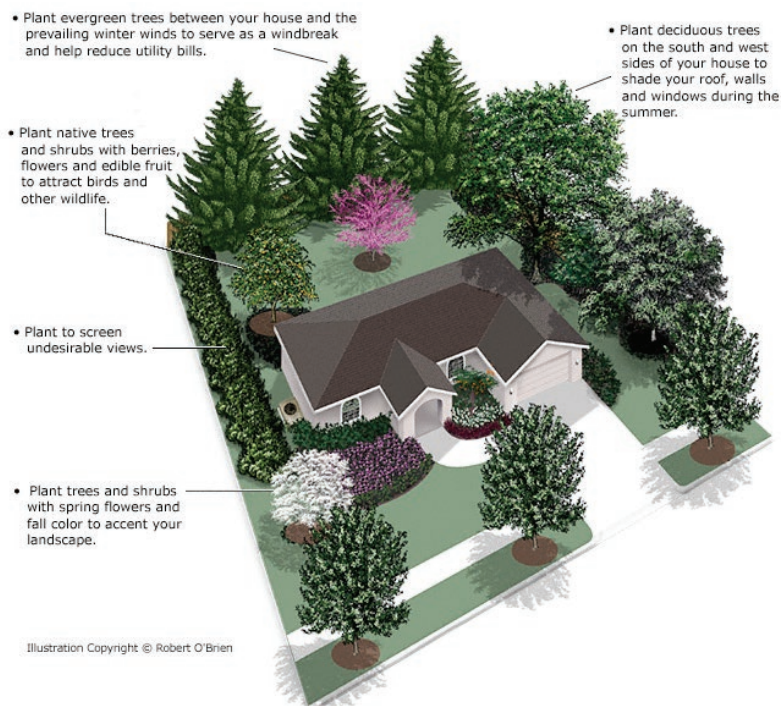


Figure 4: The use of soft landscape materials to control wind speed and movement is important for climate control and energy efficiency "Trees Produce oxygen Sequester carbon Fix nitrogen Distill water Provide habitat for a multitude of species Accrue solar energy for fuel Make complex sugars into food Create microclimates Self replicate And at the same time they provide shade and cool.

Sun and shade

The use of plants to control wind speed and movement is important for climate control and energy efficiency, but plant location in relation to the sun is also important. Choose and place plants so they do not form a barrier when direct rays of the sun are needed for warmth in winter but so they provide shade for the house from the intense heat of the sun in summer (Figure 5). Deciduous trees with heavy shade cover in summer but with open branching and complete loss of leaves in winter are the best choices to achieve this result.

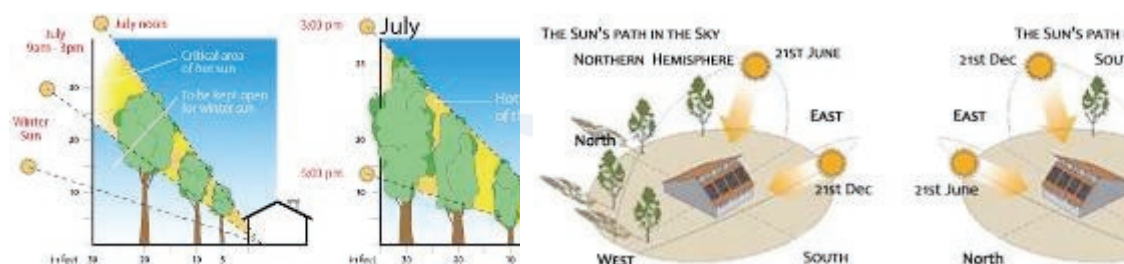


Figure 5: Where ideal orientation is not possible, as is often the case in higher density urban areas, an energy efficient home can still be achieved with careful attention to design. Soft landscape design can to improve the energy efficiency of the building, enhance the appearance and value of a property, and provide screening for privacy. Although outdoor landscape plants are pleasing in themselves, they can also play a

large part in controlling energy use indoors. Therefore, in addition to the beauty of landscape plantings, it is important to consider the entire landscape plan in relation to energy conservation in the housing areas.

Planting for summer shade

Because of the movement of the sun across the sky in summer, the plants most functional for providing summer shade are those planted to the south and southwest of the home.

The best trees for summer shade, which also produce minimum shade in the winter, are those with spreading branches and few fine twigs. Trees selected for this use should mature large enough to throw shade on the roof of the house on a midsummer afternoon. In some locations where space is too limited to plant trees for shade, vines may be used. Deciduous vines are most effective on southern and western walls. Where clinging vines cannot be used, twining vines may provide needed shade. They may be trained onto trellises placed near but not against the walls. In some locations, overhead structures such as arbors may serve a dual purpose by providing shade to patios and at the same time casting shade on walls and windows to keep the indoors cooler. Figure 6.

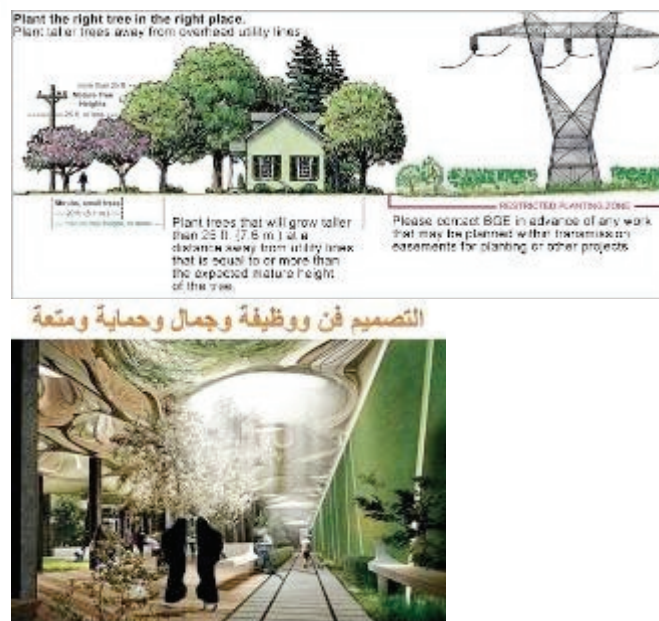


Figure 6: The key When planting trees is to select the right kind of tree for the location.³

Selected types of plants

Selected types of plants can be strategically positioned to protect the building from the harsh extremes of summer sun and chilling winter winds, improve comfort both inside and outside the home, and reduce the need for supplementary heating and cooling. Deciduous trees and vines can be ‘designed’ to shade exposed indoor and outdoor living areas in summer, while still allowing the sun through in winter. Low shrubs and ground cover around the home can reduce reflected heat and glare. Dense trees and shrubs can be positioned to deflect strong winds and channel cooling summer breezes. Landscape design can be integrated with housing design to modify summer and winter temperatures, improve comfort and save energy. Figure 7, illustrates how effective landscaping can enhance energy efficiency.

Benefits of using soft landscape

The appropriate use of vegetation in the built environment is a major influence on the quality of human life and in creating a healthy environment. Trees, shrubs, herbaceous, and aquatic plants filter pollutants in the air and water, mitigate wind and reduce solar heat gain, and stabilize soil to prevent or reduce erosion. These plants also create animal habitat, help filter and absorb storm water runoff, and may help mitigate carbon emissions. Efficient use of plants can reduce energy needs. Plants provide an effective counterpoint to the built environment and create places of beauty. The cumulative effects of these attributes are essential to balancing the effects of humans on the land. Furthermore, the native plant communities of a region provide some of the strongest cues to the unique identity of a place and generally require less maintenance and irrigation. The collaboration of design and science is critical to the creation of a healthy growing environment.

In terms of managing stormwater, green infrastructure can be defined as man-made systems that mimic natural functions. Green roofs, bioswales, bioretention ponds, permeable pavements and all ways to turn hard asphalt surfaces into green ones.⁴ Design principles of “Sustenance, Culture, and Movement” play vital roles in the functioning of cities across the globe. By flowing and bending these exemplary foci together. These foci are described as: “Sustenance” is the local food, health of places, and environmental conscience of the livable community. “Culture” is the celebration of identity and community that stimulates body and mind in a livable community. “Movement” is the pedestrian activity and public transportation that encourages healthy lifestyles and community interaction in a livable community.⁵Figure7.

Green Buildings

Building “green” means seeking more sustainable solutions to reduce the energy, water, and other resources our built environment consumes. Green buildings provide additional benefits from construction to occupancy. By taking advantage of local and regional materials, the construction of green buildings helps conserve natural resources while also stimulating local and regional economies. The integrated design approach needed for green building ensures all building systems are considered together at the same time, maximizing efficiencies and reducing operating and capital costs throughout the lifecycle of the building. By employing leading technology and design, green buildings tend to have higher market values and can sustain those values for a longer period of time than non-green buildings because they are less likely to become outdated. Figure9.

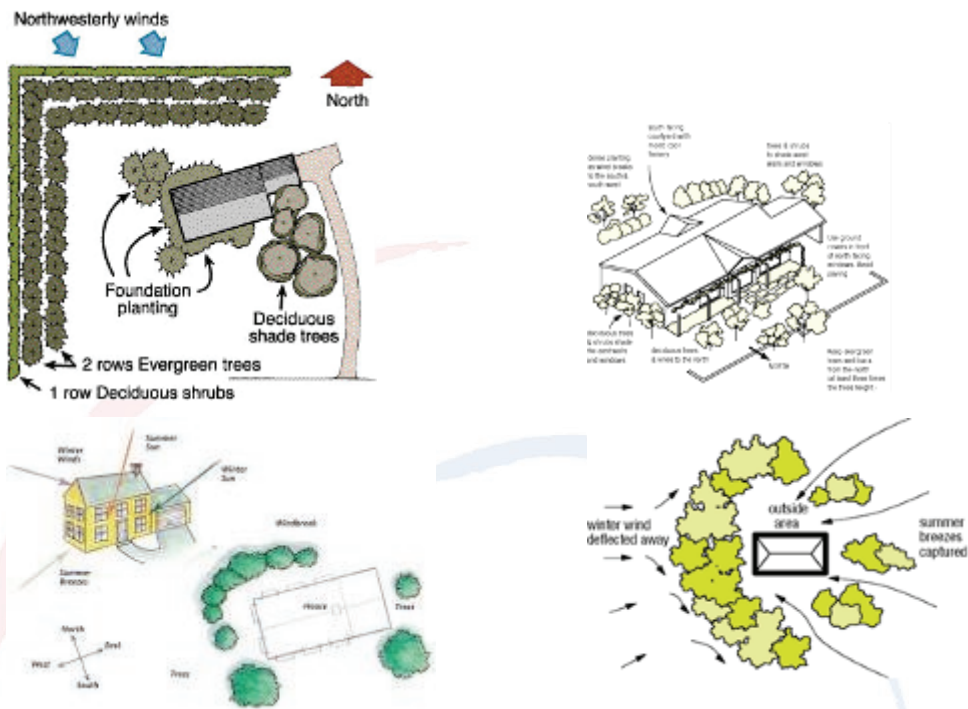


Figure 7: Use of soft landscape materials to deflect cold winds and channel summer breezes. Selected types of plants can be strategically positioned to protect the building from the harsh extremes of summer sun and chilling winter winds, improve comfort both inside and outside the home, and reduce the need for supplementary heating and cooling.

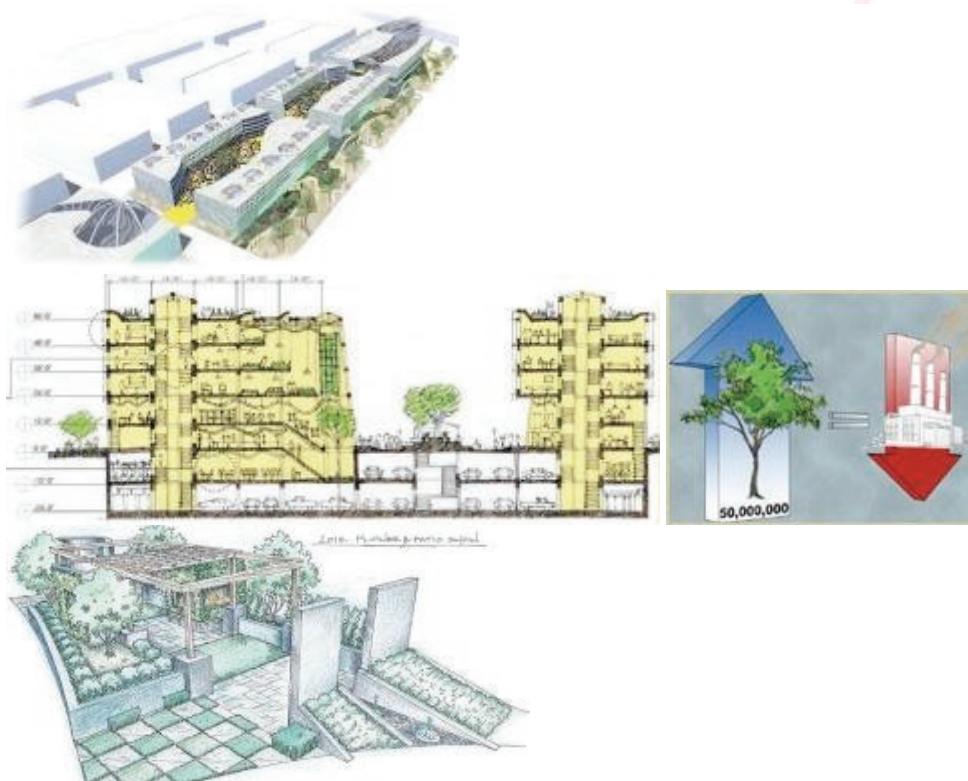


Figure 8: *The appropriate use of vegetation in the built environment is a major influence on the quality of human life and in creating a healthy environment. Trees, shrubs, herbaceous, and aquatic plants filter pollutants in the air and water, mitigate wind and reduce solar heat gain, and stabilize soil*



Figure 9: *By employing leading technology and design, green buildings tend to have higher market values and can sustain those values for a longer period of time than non-green buildings because they are outdated less likely to become.*

Green Roofs

Green roofs, which are elements of green buildings, are simply vegetated roof covers with lightweight soil and plants taking the place of otherwise conventional flat or pitched roofs. Green roofs provide multiple benefits like reducing ambient air temperature, energy use and utility costs, cleansing air and water, extending the life of a roof, and creating more bird habitat. Figure10. Green roofs help reduce the urban heat island effect. ⁶⁷Figure10.

Green Streets

Urban areas are dominated by impervious surfaces: roofs, roads, sidewalks, and parking lots. These surfaces block rain from soaking into the ground and collect oil, metals, and other contaminants that are carried directly into streams and other waterbodies. Green street networks manage runoff through their capacity to store, convey and filter stormwater. When designed as a system of roads, sidewalks, trees, planters, cisterns and vegetated medians, green streets within the housing sites will be able to manage all the rainfall they collect. Trees, as components of green streets, can moderate microclimate by slowing winter winds, funneling summer breezes, providing shade, and reducing the heat island effect, which increases people’s comfort and reduces energy needs. Trees also sequester and store atmospheric carbon. Their leaves enable evapotranspiration and filter pollution from the air. Figure11.

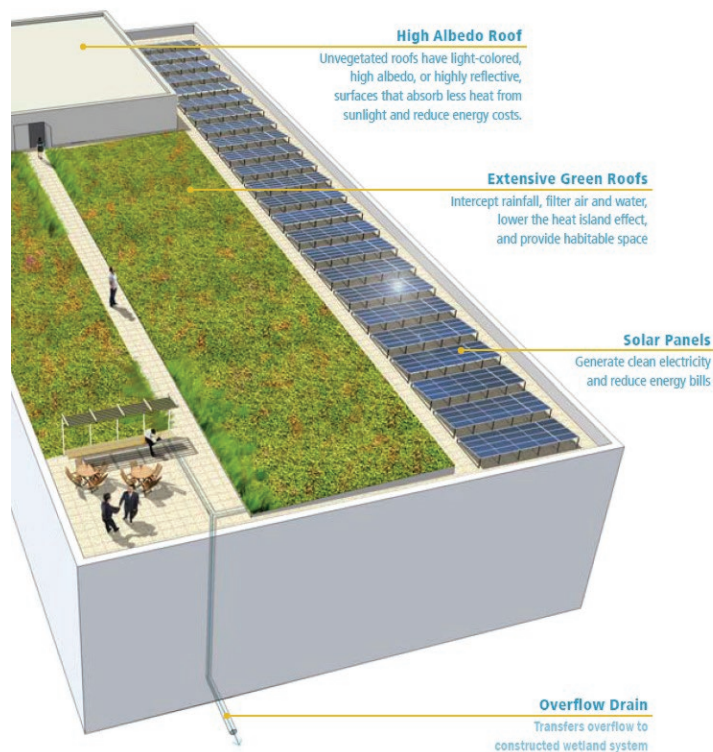


Figure 10: Green roof systems can be integrated with other green technologies. For example, green roofs and solar panels enhance each other's efficiency. Green roofs help cool ambient temperatures and allow solar panels to operate more effectively in hot weather. Solar panels shade vegetation and slow evaporation from green roofs, making it less likely that the vegetation will dry out.

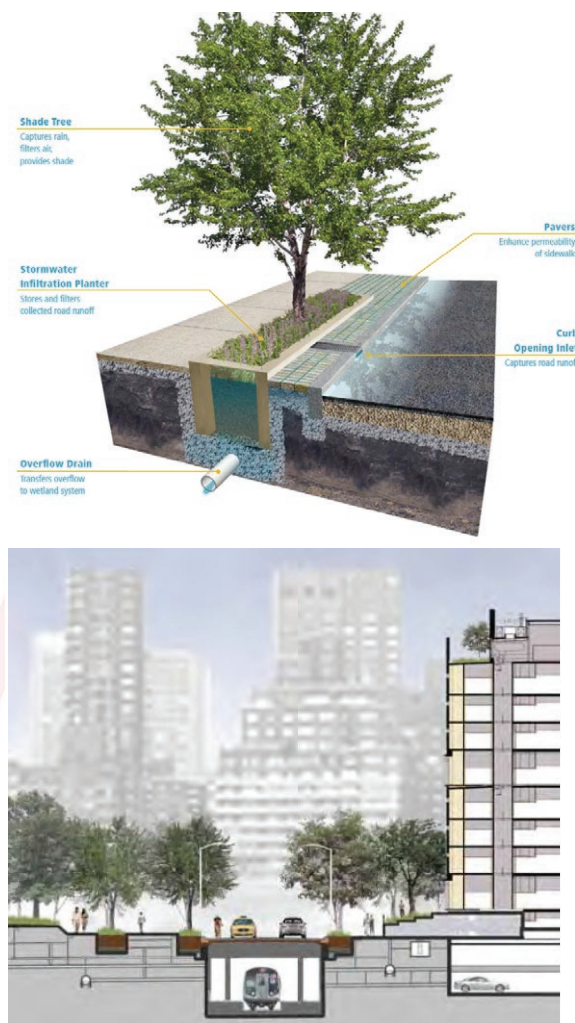


Figure 11: *Added vegetation or special paving can make streets more attractive and safer. People prefer streets with trees and greenery. Thus, green streets can attract more pedestrians who subsequently feel safer, as streets with more people have less crime. A successful green street in combination with a trail network encourages walking and biking and connects neighborhoods, reducing the environmental impacts associated with automobile traffic. Make Bigger Planting Spaces... Balance the size of paved and soil areas. Make Space for Roots. Design spaces for roots under the pavement and utilize different approaches to root space design as conditions change.*

Green Plazas

Plazas that take the form of public squares and landscaped parks serve as locations for people to rest, gather, and move through. Plazas typically include components like benches, shade trees, planters, sculptures, paving, and lawns. Plazas within the housing site will not only provide urban open space for people, but they also can assist buildings and streetscapes in managing roof and site stormwater runoff through tree cover, permeable surfaces, rain gardens and underground cisterns. A green plaza's trees will absorb and filter rainfall. Its permeable surfaces ranging from lawns and plantings to modular pavers will increase the absorption of rainfall into the ground, helping to maintain groundwater supply. Surface runoff from the plaza can be directed to trenches that transfer the stormwater to the underground cistern to later irrigate the plants in the plaza. Figure12.

Parks

Parks offer myriad benefits to an urban area. As areas of recreation and respite, they contribute greatly to people's quality of life and can provide shelter and sources of food for wildlife. As areas of increased permeability and vegetation, parks can positively affect the management of stormwater by recharging groundwater and facilitating evapotranspiration. Parks are significant contributors to the physical and aesthetic quality of urban neighborhoods, they provide open space for active and passive recreation, habitat for wildlife, and processes that are significant to natural function, like microclimate management and air filtration. Figures 13 and 14.



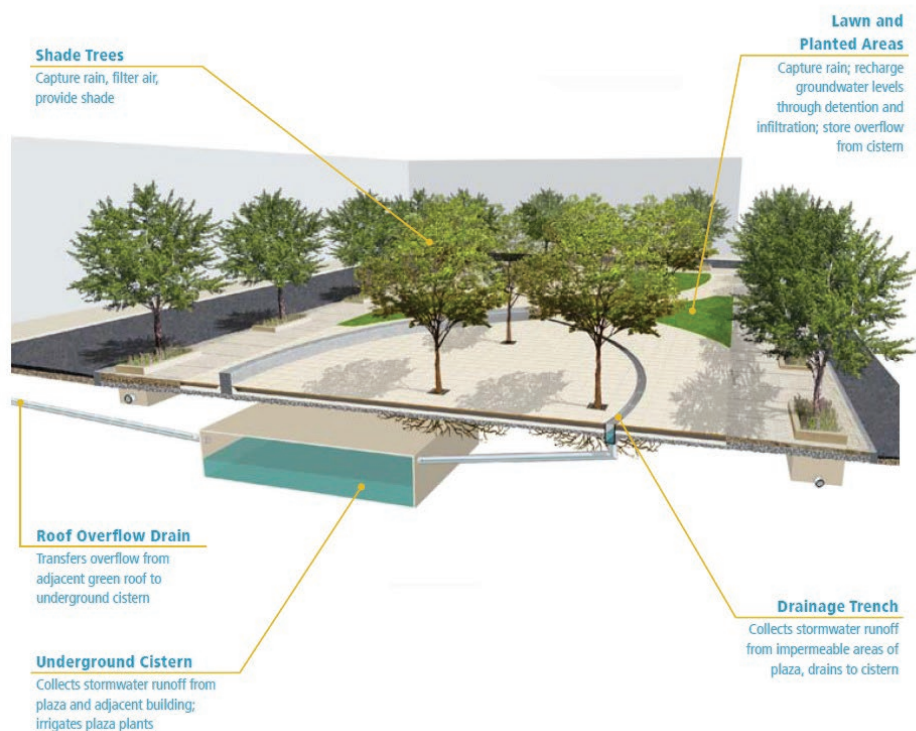


Figure 12: Trees planted in urban plazas create “outdoor rooms” that provide benefits similar to those of green streets. Green plazas can moderate microclimate, reduce the heat island effect, filter air, sequester carbon, reduce energy needs and increase people’s comfort. A U.S. Department of Energy study reports that trees reduce noise pollution by acting as a buffer and absorbing 50% of urban noise. The evaporation from a single large tree can produce the cooling effect of 10 room size air conditioners operating 24 hours/day.⁸⁹



Figure 13: *Parks can increase the value of real estate, promote human health, play a central role in a community's tourism economy, increase community cohesion and*

social capital, provide locations to plant new trees, create jobs and youth development opportunities, and support public health and community building. Economists have estimated that there is an average property value premium of 10% when parks and plazas are integrated into development, with premiums upwards of 20% along parks.¹⁰



Figure 14: *Parks can increase the value of real estate, promote human health, play a central role in a community’s tourism economy, increase community cohesion and social capital, provide locations to plant new trees, create jobs and youth development opportunities, and support public health and community building.*

Environmental Design Principles¹¹ to save energy

Environmental design is the third category of design principles. The focus of these principles is to:

- 1) enhance landscape microclimate;
- 2) increase biodiversity;
- 3) reduce resource inputs and resource waste; and
- 4) maximize reuse of resources.

Enhance landscape microclimates through:

- channeling or screening winds;
- shading structures and outdoor living areas from the summer sun while providing for winter sun exposure; and
- increasing or decreasing humidity (or the perception of humidity) through adjustments in air movement.

These enhancements can lead to lower energy and water use, healthier plants (which are capable of resisting diseases and insects with less chemical assistance), and more usable outdoor living space. Figures 15, illustrated how these principles can be implemented in a typical residential landscape.



Figure 15:

1. Windbreaks and shelterbelts conserve energy, control drifting snow, provide food and shelter for wildlife, screen unwanted views, filter dust and noise, and create microclimates that benefit plant health.
2. Berms (gradually sloped mounds of soil) help define landscape spaces by creating sloping “walls” along pathways or between different areas, elevating plants for better visibility, and improving drainage and growing conditions for plants in poor soil.
3. Ornamental grasses tolerate a wide variety of conditions, provide food and cover for wildlife and offer year-round visual interest. Many of these ornamental grasses are native to the Great Plains.
4. Groundcover plants used on steep slopes eliminate dangerous turf mowing conditions, lessen precipitation runoff and soil erosion, and provide additional visual interest and biodiversity.
5. Grouping similar plants into masses creates a stronger visual impact and interest in the landscape, copies natural plant community structure, and produces stronger edges in the landscape that are important for both aesthetics and habitat.
6. Selectively use higher maintenance turfgrasses in areas of high visibility, access, and use.
7. Use lower maintenance turfgrasses and prairie or adapted grasses in areas of low use and access (not necessarily low visibility).
8. Use organic mulch in all planting beds to increase soil water retention, reduce weeds, visually strengthen bed lines through the color and texture contrast between the mulch and turf, minimize short-term swings in soil temperatures, and enhance soil structure and organic matter content.
9. A properly designed, installed and calibrated irrigation system minimizes uneven or wasteful water application.
10. Group plants with similar water needs to avoid over- or under-watering.
11. Use drip irrigation for shrub beds and other beds to minimize water waste.
12. Properly select plants for the conditions in which they are placed (example: sun and wind exposure, soil type and soil moisture conditions). Properly selected plants will ensure a healthy landscape with minimal need for chemicals or additional management.

13. Landscape “vertically” as nature does. Placing small plants and groundcovers under small trees under large trees enhances both visual and biological diversity.
14. Creating wildlife habitat draws birds and other animals, which add to the aesthetics of the landscape and offer biological control of unwanted insects.
15. Composting garden waste and applying the resulting organic matter in the landscape improves growing conditions and recycles valuable resources.
16. Using recycled and/or local-source building materials (plastic lumber, prairie fieldstone, etc.) can help develop markets for recycled products, lessen product and installation costs and visually tie developed landscapes to the character of natural landscapes.
17. Manipulating microclimates by using overhead vines, shade structures, and trees enhances the livability of outdoor spaces.
18. Raised beds improve access to plants, make it easier to manage the soil, and improve growing conditions by increasing soil aeration and drainage.
19. Where feasible, use plantings to connect developed landscapes with natural landscape areas. These integrated landscapes are considered more environmentally valuable than small, scattered areas of vegetation.

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Implementing the principles of soft landscape in Saudi housing projects

By implementing the principles of soft landscape in Saudi housing projects we might be able to make more save energy of people places and spaces. Applying even the most basic principles — proper plant selection and placement for example — can benefit the aesthetics, environment and budget of the typical home landscape. Properly selected plants are healthy plants that have fewer insect and disease problems and, therefore, require less maintenance. Properly sized trees and shrubs need little pruning, and drought-tolerant perennials need minimal irrigation. Aesthetic principles including accent, contrast, harmony, repetition and unity ensure the design is attractive, visually compatible and has a “sense of fit” with the surrounding landscape. Functional principles dictate whether the design will be usable and will meet certain health and safety criteria. For example, drainage must be routed away from the foundation of a home; sidewalks and outdoor spaces should be sized appropriately for homeowner and visitor use; and landscapes should include areas dedicated to private, public, and utility needs towards achieving a sustainable and saver energy housing prototypes in Saudi desert environment. Figure 16, in general, might give a summary of how to achieve save energy housing.

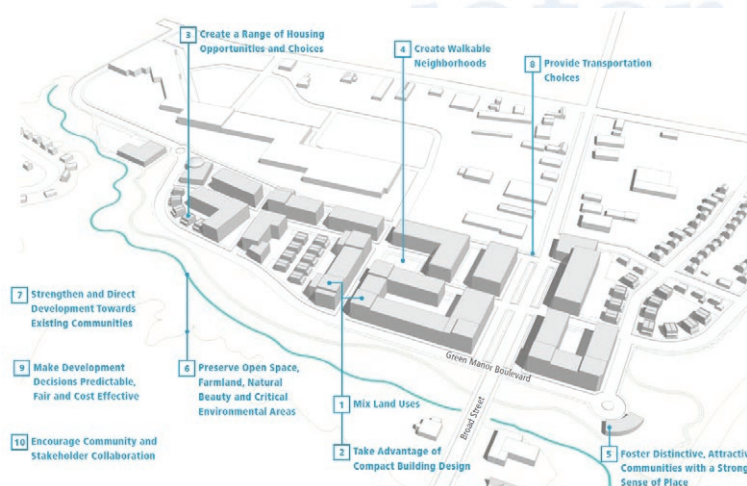


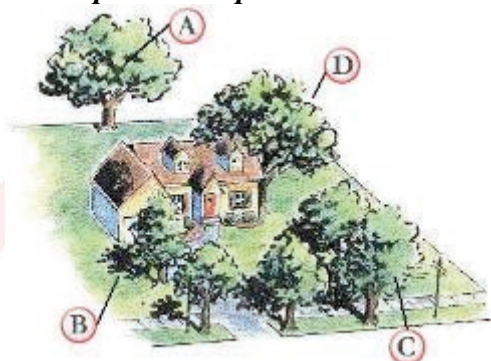
Figure 16: *Concept plans for the site can be developed working with the design brief and site analysis. The site analysis will help to determine the best location for plants and the best contribution they can make. For example, should a windbreak be used to give protection from unpleasant winds and where should it be located? Are there large areas of glass to be protected from glare? Are there large areas of paving that have to be shaded? The brief may have identified the need for a paved courtyard beside the building. The concept plans may indicate the location of a windbreak for winter wind protection and shade trees for glare control. The detailed plan would give the precise configuration of the ENERGY SAVING HOUSING SCHEMES.¹²¹³*

Choosing where to plant is the first step¹⁴

Follow these guidelines to get the maximum benefit from your new trees.

The first step in landscaping is choosing the best location for your new trees. Before you visit the tree nursery, take a few photos of your home from different angles, and draw a simple map to show how your home is sited. Figure 17, can be considered as a first approach to save energy in Saudi housing projects.

The worst places to plant trees:



C. DON'T plant large- or medium-size trees under power lines. A storm or even just a brisk wind could easily disrupt electrical service to the entire neighborhood. It doesn't have to be an extended outage to cause problems: branches rubbing on power lines can cause blinks and surges that can damage sensitive electronic equipment.

A. DON'T plant too far from the house. This tree is providing no benefit to the home, and it could be causing problems for the neighbors.

B. DON'T plant too close to the driveway or sidewalk. Growing root can easily crack through concrete, and low-hanging branches can block the view of pedestrians or oncoming traffic. Also be aware that the area between the curb and sidewalk might be city-owned property; check with your city clerk's office before planting here.

D. DON'T plant too close to the house. Branches can damage siding, gutters and roofing, and roots can block sewer and drain lines. If the tree is deciduous (leafy), leaves will quickly clog the gutters in the fall.

The best places to plant trees:



1. DO plant the correct distance from the house and choose a size and color to complement your home's exterior.

2. DO plant trees to draw attention to your home and provide seasonal color and spring blooms.

3. DO use shrubs or small evergreens when

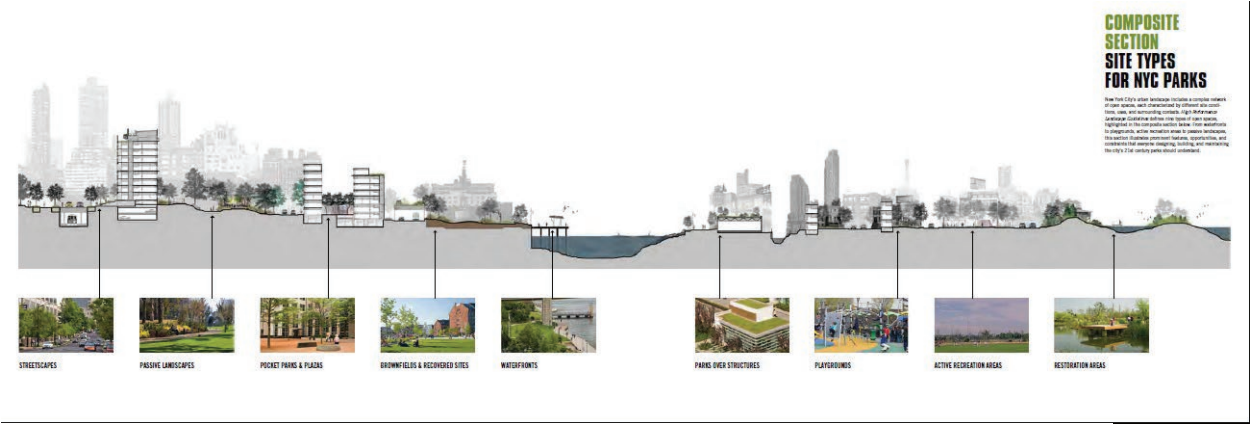
4. DO plant small ornamental trees under power lines. Look for species that will be less than 25 feet high at maturity. Planting along the perimeter or fence line.

5. DO plant trees around patios and decks to provide summer shade. A tree for this spot should be a clean tree that will not litter the patio area with fruits, limbs or leaves every time the wind blows

Summary

Utilization the benefits of soft landscape in housing site can be applied to modify temperatures in and around the dwelling units of housing areas. Shade from trees to roofs and/or windows can improve both comfort and the energy efficiency of Housings so that heating and cooling requirements are reduced. The landscape designers must be involved during initial design process of all housing projects in Saudi Arabia. Landscape design is part of the wider design process, allowing interaction between the building orientation, building design, site conditions, and proposed landscape development. This presents the best opportunity for maximizing the landscape benefits to the whole residential schemes. In fact, soft landscaping may be the best long-term investment for reducing heating and cooling costs. An adequate soft landscape design methodology will reduce summer and winter energy costs dramatically, and safeguard homes from winter wind and summer sun, adding to that, it will decrease consumption of water, and fuel for landscaping and lawn maintenance, control noise and air pollution. This paper had covered soft landscaping tips to save energy; and enhance local environment and microclimate; though utilization of some valuable design considerations of planting the right selection of trees and shrubs. Trees and shrubs come in all shapes and sizes. The ultimate wish is to see Saudi Arabian people places and spaces to be shaped in the light of LANDSCAPE ARCHITECTURE.





The ultimate wish is to see Saudi Arabian people places and spaces to be shaped in the light of LANDSCAPE ARCHITECTURE



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Evaluating the Initiative for the Integration of Regional Infrastructure in South America (IIRSA): Economic, Social and the Environmental Impacts in the Amazon Countries in the Cardoso and Lula Governments (1995-2010)

Fábio Borges

Universidade Federal da Integração Latino-Americana , Brazil

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Introduction:

Since the 1990s Brazil began to take special interest in South American affairs, specifically during the presidencies of Fernando Henrique Cardoso (1995-2002) and Luiz Inácio “Lula” da Silva (2003-2010), which resulted in the strengthening of MERCOSUL.

During this period, countries with the highest economic growth were those located around the Pacific Rim, which made the Brazilian Amazon region increasingly important because of its shared border with countries with access to the Pacific, such as Peru.

Today, this trend in international growth has continued and Brazil is working to increase the Initiative for the Integration of Regional Infrastructure in South America (IIRSA) in order to gain access to the Pacific. However the construction of a new road or the improvement of an existing road on adjacent territories may also involve economic, social and environmental dimensions.

For this reason the concept of “Strategic Environmental Assessment” (SEA) is very important because the objective is not to promote more or less deforestation *per se*, but to analyze how changes in land-use affect the lives of the people living in the Amazon and what the implications are for the rest of the world in terms of reduced environmental services.

Recognizing that deforestation has both costs and benefits, and beginning to measure the magnitude of these, is the first step towards developing meaningful international and domestic policies that will deliver both the environmental services so desired in the North hemisphere as well as the economic development so needed in the South hemisphere.

1- Brazil’s role in the South American integration during the presidencies of Fernando Henrique Cardoso (1995-2002) and Luiz Inácio “Lula” da Silva (2003-2010)

The proposal for a South American Free Trade Area (SAFTA) was first outlined by Brazilian President Itamar Franco in September 1993 and was presented to a meeting of the Latin American Association of Integration (ALADI) in February 1994. The goal of SAFTA was to create a free trade zone for “substantially all trade” within the subcontinent, through a linear, automatic, and progressive schedule of liberalization over the ten-year period of 1995 to 2005. By launching SAFTA, Brazil was promoting a concept of ALADI without Mexico, “a scheme that would be free of US interference and which the hegemonic role would inevitably be played by Brazil” (CARRANZA, 2000, p. 84-85). The same author added:

Brazil has been playing such a role in Mercosur, and could potentially play the same role in a future South American Free Trade Area (SAFTA). From this perspective, Mercosur can be seen as an assertion of Brazilian regional hegemony rather than as a step toward Western hemispheric integration under US leadership. The prospects for the emergence of SAFTA depend to a significant extent on whether Brazil can consolidate its hegemonic role in the subcontinent or whether US

hegemony in the Western Hemisphere completely overshadows and neutralizes Brazilian hegemony in South America (CARRANZA, 2000, p. 29)

Sean W. Burges sustains that Brazil does not have enough resources to support the development of South America integration. He defends an interesting thesis in which he argues that the solution to the resource-scarcity conundrum facing foreign-policy makers during the Cardoso period was to use the opening of the subregional and regional context as a device to capture the influence necessary to guide and direct the continental environment from within. At the same time, this opening would simultaneously create a degree of insulation from potential hemispheric and global intervention. In his perspective, there was a complex mix of ideas based on a **reformulated dependency view of developing-country insertion into the global economy** with economic initiatives such as region formation on a subregional and continental scale as well as the Initiative for Regional Infrastructure Integration in South America (IIRSA) (BURGES, 2007, p. 4, my highlight)

The former Brazilian President Cardoso said that the regional integration efforts could not stop Mercosur from remaining alive and active. “The integration of our physical space has become one of the goals of the planning proposals that we take to the meetings of the Presidents of the countries of South America”. He reported that after this point, they launched the initiatives of the Brazil-Bolivia gas pipeline, the energy integration with Argentina, the BR-173 highway between Manaus and the border with Venezuela. In addition, they launched the line of transmission of the Guri Dam in Venezuela, one of the largest hydroelectric dams in the world, bringing energy from the neighboring country to the Amazon region (this began in the second term of Venezuela President Rafael Caldera (1994-1999) and concluded under the government of his successor, Hugo Chávez). FHC concluded:

In Brasilia in August 2000, we called the first historic meeting that brought together all the presidents of South America, which was followed by another meeting in Guayaquil, Ecuador in 2001. That meeting saw the beginning of what would be called the Initiative for the Infrastructural Integration of the South American Region, known by its Portuguese acronym IIRSA. With the support of the IDB over the following years, the governments of the countries of South America carried out an extensive study of the needs and possibilities of physical integration of the region, selecting a set of strategic projects for the development of the continent. These complementary efforts to build a “South American Region” relates to the regional integration of energy, transport, and telecommunications. Politically, however, it seem to a few countries, especially Mexico, that the initiative could mean the isolation of the South American nations, under the leadership of Brazil, from the rest of Latin America that is closer to the United States. This was never the intention. (CARDOSO, 2006, p. 620).

In Sean Burges’ opinion Brazil “has a long history of acting to protect its own interests in the Americas by quietly influencing and pressuring its neighbors, a process that accelerated toward the end of the twentieth century.” Still this author says that the fact that “such actions have often gone largely unnoticed is not just a by-product of broad international indifference to Brazil’s foreign policy, but also a result of the methods that the Brazilian Foreign Ministry, Itamaraty, uses to pursue the country’s international agenda.” He complemented his idea explaining that:

(...) overt action or intervention has not been the norm. Rather, the strategy has been one of secreting the country's integrated and sustained ambitions for hemispheric and global leadership behind a cloak of indirect and ostensibly technocratic apolitical programs, well wrapped in an added mantle of multilateralism and often run through other government ministries and agencies (BURGES, 2007, p. 1).

Burges continues to explain why sometimes seemingly unrelated Brazilian initiatives pursued in the South American context provide a clear picture of how Itamaraty goes about advancing Brazil's international agenda. In this way, this author develops the notion of "consensual hegemony" related to the role of Brazil on South America. He argues that:

Nuance is important. Traditional conceptions of leadership as relying on forms of coercion and domination played little role in the approach adopted by Itamaraty during the Cardoso era. Instead, a new style of leadership was developed, one that found parallels in the Gramscian student-teacher dialectic's focus on consensus creation, discussion, and mutual internalization of new ideas and techniques. **The intent was not to seek Brazilian leadership of a South American region through imposition, but to instigate a mutually beneficial ordering that would quietly embed Brazilians interests, aspirations, and strategies in the region. While this goal was sometimes hinted at in official statements and academic analyses, it was not explicitly proclaimed or comprehensively examined until the transition to the Lula presidency** (BURGES, 2007, p. 185, my highlight).

Burges asserts that Brazil's foreign-policy makers sought to deploy ostensibly apolitical or technocratic agreements as a tool for reforming production structures and fostering the confidence and interdependence necessary to support Brazil-centered regional projects. He concluded:

The inclusive nature of a Gramsci-inspired approach to leadership predicated on the notion of consensual hegemony, particularly in the fostering of substate-level interaction between countries, emerges clearly in the contrasting analysis of Mercosul, SAFTA, and IIRSA to strongly suggest that political intent is not enough to form a region. Rather, political initiatives must be married with leadership in concrete and seemingly apolitical policies such as infrastructure integration to bring about the mutual interpenetration necessary to incite pressure from civil society and business groups for a continuation and deepening of the regional project. The emphasis on cooperation and inclusion free of aggressive coercion is critical because, as has been argued here, the formation and operation of a successful region depends on decisions made by business independent of state influence. In short, the ultimate decision by business and wider population to embrace a regional project on a sustained basis will be based on a calculation of interests, not on political rhetoric. As the brief discussion of Lula's continuation of the consensual hegemony leadership strategy suggests, an important part of the approach adopted by Itamaraty during the Cardoso era was a clear and sustained willingness to actively disavow leadership ambitions when solid, fungible resources were not available consistently to offer payoffs in return for acquiescence to the regional project (BURGES, 2007, p. 185-186).

Burges further shows that Brazil during the Cardoso era and the first Lula administration remained economically and politically unable to underwrite and sustain the development of neighboring countries. In this sense Brazil was unable to

truly take on the responsibility of leadership and fulfill the role of an economic engine for South America, “a shortcoming demonstrated by the paucity of complex transnationalized production chains and the slow spread of Brazilian firms throughout the continent.” However, he argues that it would be wrong to suggest that policy in the economic dimension was a failure:

Just as the ideational basis of the regional leadership project offered positive returns, so did efforts aimed at tighter economic integration. The advent and preservation of Mercosul allowed a transformation in trade patterns and the consolidation of value-added industries in addition to providing an expanded market to entice sustained inward flow of foreign direct investment. Elaboration of a continental energy matrix allowed Brazil to convert its greatest economic weakness into a strategic strength as it transformed energy dependency into a device to deepen ties with neighboring countries, especially Argentina, Paraguay, Bolivia, and Venezuela. Indeed, the combination of an emergent industrialized market in Mercosul and the deepened economic ties on the continent precipitated by the energy matrix pointed toward the potential for expanded intra-South American trade (BURGES, 2007, p. 187-188).

For these considerations, the proposal of IIRSA seems very useful in considering the role of Brazil in the integration of South America, as this initiative opens perspectives of mutual advantages between Brazil and its neighbors.

2- The potentials and the limits of IIRSA

Pitou van Dijck argues that infrastructure plays a key role in stimulating economic growth by facilitating production and trade, thus generating income and employment. Without efficient transportation and communication infrastructure, economic agents face high costs that hamper production, trade, and consumption, and consequently reduce welfare. Adds:

Particularly, countries that pursue export-orientated development policies may suffer greatly from a lack of efficient (transport) infrastructure. Transportation costs may be expressed in terms of their import tariff equivalents, and their impact on welfare may be considered in similar ways. IIRSA is part of a comprehensive set of policy initiatives to strengthen the position of South America in the global economy. The new insertion of the region in world markets was initiated by a process of unilaterally implemented trade liberalization, strengthened by group-wise initiatives to improve market access, and locked in at the multilateral level. Stabilization and restructuring policies, aiming at the liberalization of trade and capital movement, privatization, and regional integration, have made the region's prospects to improve the standard of living more dependent on the capability of domestic producers to compete in domestic and foreign markets and to supply worldwide the required quantities and qualities in time. To support domestic producers to meet this challenge, a broad array of measures is required to facilitate trade and enhance trade-related capacity (DIJCK, 2008, p. 106).

Dijck argues that the renewed insertion of the South American countries in world markets coincides and is partly induced by the emergence of new centers of gravity in the world economy, offering new trade opportunities and challenges. This holds true especially for the growing significance of East Asia, and China in particular, as an importer of South American commodities. This explains part of the increased interest

in the relations between Brazil and the countries of the Amazon basin, since these countries have natural access to Pacific Ocean, and thus East Asia. As Enrique Amayo Zevallos pointed out in 1993:

From our perspective, the **Amazon will not remain apart from the Pacific Ocean. Sooner or later the links will be established, and the natural exit will be through Peru; we call it *natural* because it is the shortest distance, and the least difficult, between the Brazilian Amazon and the Pacific coast.** You only need to look at maps to come to this conclusion (AMAYO Z., 2009, p. 106, my highlight).

As Amayo explained, this shorter distance means lower transportation costs and the Peruvian coast benefits from having the best position in South America to transport commodities to key spots in the Pacific. He concludes:

Brazil is a major soy bean producer, and its largest soy crops are located closer to Peru than to the Atlantic Coast. Brazil would certainly benefit from selling larger volumes to the insatiable Asian market, with more competitive transport costs. Peru would benefit mainly from the port construction, and corresponding revenues from a port that probably would be the largest in the Pacific Coast of South America. Moreover, the volumes of Peruvian sales of fishery and phosphates to Brazil would increase. With the easy access, Brazil could buy the natural fertilizer at lower prices, causing less damage to its environment. Therefore, both countries would benefit from a link between the Brazilian Amazon and the Pacific Ocean through northern Peru, a model to other partnerships in the subcontinent.

The opinion of Pitou van Dijck is also valid when he says that the rise of Asia not only contributes to Latin America's export potential but may also jeopardize its aspirations of becoming a platform for manufacturing production and assembly for the international market.

The overall structure of IIRSA involves three regional development banks: the Inter-American Development Bank (IDB), the Andean Development Corporation (CAF) and the Financial Fund for the Development of the Rio de la Plata Basin (FONPLATA). Moreover, the European Investment Bank (EIB) will be involved in view of its particular expertise in the areas of cross-border financial and legal institutional cooperation. All this does not exclude that at a later stage other official and private financial institutions will be involved. Clearly, co-financing arrangements are actively pursued and so are PPPs arrangements." The same researches add: "The principal advantage of PPPs is that they enable governments to make use of private sector finance, efficiency and innovation, thereby reducing the costs of infrastructure services for the public sector while at the same time improving quality. (...) For governments with large fiscal problems PPPs can offer interesting opportunities to elevate infrastructure investments and stimulate economic growth. **However, economic theory and the international experience with PPPs over the last decade also show that PPPs are not a guarantee for high-quality and cost-efficient infrastructure. Negative financial and fiscal consequences of PPPs can be substantial, particularly when the organization and regulation of such contracts are not accurately defined** (DIJCK and HAAK, 2006, p. 2-4, my highlight).

Indeed, IIRSA and Public-Private Partnerships (PPP) plans for the construction of several transcontinental roads, linking the Atlantic side of the region with the Pacific, the so-called *bioceánicas*, not only facilitate Latin America's export drive but may also contribute to competition in the regional market by Asia's industry. In support of an enhanced insertion in international markets, measures are required that complement the traditional agenda of shallow liberalization, focusing on the abolishment of barriers to trade and integration at the borders. In contrast with shallow integration, deeper integration may be conceived of as a form of integration that moves beyond the removal of trade obstacles in the following ways: improvement of customs procedures and other forms of trade facilitation; regulations pertaining to trade-related technical, sanitary and phytosanitary standards; and trade-related physical infrastructure. Such measures may enhance the capability of countries to exploit trade opportunities in regional or global markets. With declining rates of import tariffs, the role of transportation costs – expressed in terms of their tariff equivalent – in international competition has increased (DIJCK, 2008, p. 106-107).

The impact of the construction of a new road or the improvement of an existing road on adjacent territories may also involve economic, social and environmental dimensions. Dijck explains that the spatial extent of the impact depends on a large number of factors that differ among hubs and specific locations along these hubs. In this way, he asserts that:

Hence, meaningful generalizations on the impact of roads on their environment – defined broadly and including economic, social, physical, ecological and institutional dimensions – are not warranted. Put differently, generalized claims regarding the potentials of infrastructure in support of sustainable development will be hard to substantiate, and the same holds for allegations pertaining to the negative effects of these infrastructure programmes. Notwithstanding the wide variety in impact that roads may have on adjacent territories, some regularities and patterns may be inferred from statistical studies on land use conversion and deforestation effects of road building and improvement (...) (DIJCK, 2008, p. 108).

In addition, Dijck explains the concept of “Strategic Environmental Assessment” (SEA) and that, thus far, only a few SEAs have been conducted in relation to corridors in the IIRSA agenda, and only very little systemic knowledge and skills have been developed related to the appropriate methodology for studies of such large-scale corridors. Dijck warns too of the real risk that future SEAs will not be particularly comprehensive as governments and financial institutions increase pressure to limit the time and resources expended on SEAs. He added:

It has been proposed to limit the time available to undertake a SEA to six months and to limit the available budget to US\$ 300,000 (approximately € 200,000). One may question the rationale of this recent approach for at least three reasons. First, earlier experience with road construction in Amazonian shows that unexpected spatially widespread negative environmental and economic developments with an irreversible character have occurred in cases characterized by inadequate *ex ante* assessment. The developments related to the Polonoeste (BR 364) in Rondônia that ultimately contributed to the withdrawal of multilateral financial institutions such as IDB and The World Bank from financing large-scale road infrastructure programmes in South America for a long period of time, are a case in point. Moreover, there is no need to postpone investment in the proposed hub entirely during the period in which a

comprehensive SEA is being executed as specific projects along the trajectory can be started that do not depend on the outcomes of the overall assessment and on final decisions concerning the development of the integrated hub. Finally, in view of the overall budgeted expenses of the IIRSA hubs (...) the expenses on a comprehensive SEA are modest (DIJCK, 2008, p. 116).

In this sense, the same author points out that SEAs are a vital mechanism to stimulate the potential welfare-enhancing impact of road infrastructure and mitigate potential negative effects on human welfare, animal and plant life, and the environment. He concludes:

Cutting time and budgets available for making SEAs in the context of large infrastructure programs like IIRSA with potentially large and irreversible effects is probably unsound from the perspective of rational decision-making and human welfare. Moreover, it may undermine political and popular support for the infrastructure program itself, at the local, national and international level (DIJCK, 2008, p. 118).

Dijk and Haak (2006, p. 61) explain that roads may induce significant economic and ecological changes along their trajectory. In this way, their construction or renovation may affect land use and land prices, local and regional economic activities, and, to a second degree, the life of local people and the ecosystem at-large. They added that the most significant and often irreversible impacts are located along trajectories through previously inaccessible areas like pristine forests.

With regard to the Brazilian experience with Environmental Impact Assessment (EIA), still the same authors say that:

Comprehensive and adequate the legal framework for EIA may seem, the **actual Brazilian EIA-practice is rather different. First and foremost, the link between EIA and project design, not to mention project alteration or modification, is weak. In Brazil, the EIA is merely a step in the process of project planning, a sheer autograph that has to be obtained. As a result, the role of the EIA with respect to prevention and mitigation of negative environmental effects is severely limited.** Economic and political pressures contribute significantly to this problem. In general, the lobby by powerful interest groups for roads – like the soya farmers in the case of the BR-163 – starts long before a decision has to be taken. **As is the case with the multi-year investment plans, international financing is stimulated and attracted before even a minimal cost-benefit analysis has been carried out, thereby creating a (financial) momentum that cannot be stopped or adjusted by environmental or social concerns. An EIA often is carried out short before the start of a project, when alternatives or modifications are no longer possible.** Second, **EIAS in Brazil generally do not cover indirect or “dragging” effects and are of limited scope.** Most impacts of roads do not occur at the time of construction and in the direct vicinity of the road. Both time and area demarcation are too narrow. The case of the BR-163 highway is a clear example of these serious shortcomings of the Brazilian EIA-practice. **Another complicating factor is that EIAs have to be paid for by the project proponent. Consultants are regularly pressure to produce favourable reports, since the financial and political stakes in securing project approval are high. By means of nearly impossible deadlines, influence on draft reports and financial incentives – such as last installments after project approval-, project proponent tend to**

manipulate the EIA-process (DIJCK and HAAK, 2006, p. 65, my highlights).

The authors state that because of the significant environmental and social effects the BR-163 highway project was expected to generate, a large number of social and environmental organizations started to mobilize civil society shortly after President Lula announced the paving of the road in early 2003.

In thinking about the IIRSA and the PPP, Dijck and Haak further argue that the experience with PPP in the road infrastructure sector in South America has been limited overall and, in particular, with trans-border infrastructure efforts. The authors add that the international dimension of an infrastructural program increases its complexity by requiring rules and mechanisms for the distribution of costs, benefits and risks between the governments involved. Moreover, they explain that certain mechanisms are required to deal with differences in national regulations regarding road constructions and related environmental and technical standards:

(...) On paper, the regulatory framework for PPPs and ordinary concessions in Brazil is adequate and complete. **However, an adequate regulatory framework for a PPP is by no means a guarantee for a well-functioning PPP. As the analysis of the Brazilian experience with infrastructure projects in this study shows, the potential benefit of PPPs do not come into being automatically.** Financial risks and inadequate mechanisms to distribute risks can hamper seriously the accomplishment of higher efficiency in public investments and endanger the sustainability of the PPP programme, as illustrated in the case of the Mato Grosso State *Programa Estradeiro*. The assessment of the *Programa Estradeiro* shows that, instead of “socializing” the benefits of private sector efficiency, **PPPs can also be used to transfer costs from the private sector to the public sector and the community at large.** Mato Grosso provides a striking example of a region in which a dominant economic sector, the soybean sector, also holds political power. In order to foster its growth and profitability, soya farmers have engaged themselves in a PPP programme, the outline and mechanisms of which are particularly beneficial to their own interests but much less so to the interests of the wider community, the state of Mato Grosso (DIJCK and HAAK, 2006, p. 78-79, my highlights).

In this sense, rent seeking and political scheming may undermine the potential benefits of PPPs even further. Nevertheless, Dijck and Haak explain that PPPs are promising instruments to improve the efficiency of public investments in infrastructure projects. In addition, they have the potential to attract private capital, which can be used to increase the total investment in infrastructures projects. “With financial risks distributed more adequately, and by using comprehensive environmental assessments and cost-benefit analyses, PPPs can produce substantial rewards for society at large” (DIJCK and HAAK, 2006, p. 80).

According to Patricia Molina, the principle stakeholders in financing and promoting projects in the IIRSA are entrepreneurs in Agribusiness, principally the major soy producers, river transportation companies, companies in the food sector such as Cargill and Bunge, and transgenic seed businesses, like Monsanto. These businesses are concerned primarily with cutting the cost of transporting their goods to ports on the Pacific Ocean in Peru and Chile, and in converting vast areas of the Amazon region in to monocultural farmland to grow soy (MOLINA, 2010, p. 32).

Claudete de Castro Silva Vitte concluded that:

(...) in this way, there is a commitment of public money, which eventually benefits the large investors, especially from the first world, who speculate to over-exploit the region's resources, subjecting the rivers to the risk of an environmental disaster, under the auspices of *progress*.

Alessandro Biazzi Couto highlights the active role of three large Brazilian contractors in the infrastructural integration of South America: Odebrecht, Camargo Correa, Andrade Gutierrez. These companies constituted the major holdings and have diversified their businesses. Couto states:

Beyond the area of engineering, Odebrecht is the largest petrochemical group in the Americas to control the company, Brazkem. It forecasts billion-dollar investments in the coming years to its subsidiary ETH Bioenergia, which is geared toward the production of ethanol from sugar cane. Camargo Correa already has its own cement plant and controls Alpargatas Calçados (Havaianas, Rainha, Topper, Timberland e Mizuno). It is also a shareholder of the Usiminas Steel Plant, the São Paulo state energy utility company (CPFL Energia), and the Companhia de Concessões Rodoviárias (CCR), which controls Dutra (RJ-SP) and Paraná with a total of 1,452 kilometers in road concessions. Andrade Gutierrez is not far behind: it is also a shareholder of the CCR and of the energy company, Light. It also controls the telecommunications company, Telemar, which includes the Oi cell phone service company, and will have the concession for the new airport in Quito, Ecuador which is still under construction. **Exposing such extensive date is crucial to the Brazilian social actors have a sense of the economic power of these Brazilian transnational businesses (...). This configuration of highly concentrated capital allows these groups to guide public policy and compete internationally with lower costs in relation to the larger projects, in which the transfer of public funds is often bureaucratic and late.**

Final Remarks

Bertha Becker made an important observation when considering the soy bean expansion in the Amazon, with the purpose of predicting the conflicts between the actors in several IIRSA hubs. She claimed that logistics are not the biggest challenge in maintaining the expansion of soy cultivation. The central difficulty lies in the socio-political and territorial fields, where there are two different time-space perspectives in conflict. On one side, the corporations' time-space, which bases itself in joining logistic with geopolitics, expands the production quickly. In the process, these corporations create alliances with governments and other companies in order to achieve their target goals. On the other hand, there is the time-space perspective of the agricultural industry which does not to adapt easily to change. While small farmers wish to keep their lands and identity, in general they do not have the required technical and financial support. However, they do have a unique instrument on their side: their organization and resilience. They are able to thus voice their opinions to society and put pressure on the State by using the pretext of the environment as their main defense (BECKER, 2007, p. 124).

These organized, local groups of farmers are also highly innovative. They use several resources to resist pressures, particularly from abroad since global process have strong local impacts. **The fact is that these local groups, once invisible, are becoming increasingly visible in the struggle against the efforts to put a price on nature** (VITTE, 2009, p. 10, my highlight).

For Isabella F. Wanderley *et al.*, the forecasted construction within the projects of IIRSA, especially in the north-center of the subcontinent, may create social and environmental conflicts.

(...) based on similar projects in the past, it is predicted that these conflicts potentially contribute to the increase in deforestation, the *illegal selling of land*, violence against native people, the spread of contagious diseases, the gradual loss of traditional cultural values, and also the decrease of environmental benefits, among other harmful impacts (WANDERLEY *et al.*, 2007, p. 5-7).

Beyond analyzing the strategic importance of the Amazon region for Brazil and the possible consequences of current integration plans, deeper evaluations of the interests involved in these projects is also necessary. It is most important to think about how this integration can benefit society as a whole in the long term, keeping in mind environmental impacts and working to not only take into account the interests of a small portion of the Brazilian business community.

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The Development Of Information Resources in Library Search System Based on RFID

Kanita Saengkrajang

Phetchabun Rajabhat University, Thailand

0159

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Abstract

The objectives of this research were to develop the development of information resources in library search system based on RFID. The research methodology was composed of three steps. Firstly, the IR form and model were synthesized through gathering and elicitation IR. Secondly, the IR system was analyzed, designed, and implemented. Last, the IR system was tried on the experts. The processes we studied the related information, selected the application prototype based on studied criteria, and developed the system using JAVA language and MySQL database.

The results of the research showed the following: The design was synthetic model to guideline for design as follows:

- A) The Client site was operated the user wants to use system through Web browser.
- B) The Web server was operated the system.
- C) The Database server was operated the system consists of information management systems that the administrator were managed data such as user data management in organization.

The analysis of the evaluation of system efficiency by the experts found that the system efficiency was at the high level of five aspects with a mean of 4.18 and a standard deviation of 0.34 can be used. (Usability Test were at very good (\bar{x} =4.80, S.D. =0.45), Functional Requirement Test were at good (\bar{x} =4.00, S.D. =1.00), Security Test were at good level (\bar{x} =4.33, S.D. =0.58), Output Validation Test were at good (\bar{x} =4.00, S.D. =0.71), and Functional Test were at good (\bar{x} =3.80, S.D. =1.30).

Keywords: Information Resources, *RFID*

1. Introduction

One of the most important recent RFID applications can be found in library systems. Libraries are facing the challenge of managing the growing size of collection and keeping operation budget low. RFID seems a very promising technology here where books can have an embedded RFID chip with all relevant information. The advantages of RFID over barcode or magnetic strip systems can be seen from several viewpoint. Since RFID tags can be read through an item, borrows can check out several books at one scan. RFID could help staff speed up inventory management process, reduce human errors and increase the accuracy of inventory record. Smart shelves are used to pinpoint the exact location of books in a library.

2. Objective

The objectives of this research were to develop the development of information resources in library search system based on RFID.

3. Literature Review

3.1 RFID

RFID (Radio Frequency Identification) allows an item, for example a library book, to be tracked and communicated with by radio waves. This technology is similar in concept to a cellphone. RFID is a broad term for technologies that use radio waves to automatically identify people or objects. There are several methods of identification, but the most common is to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna. (Shahid, 2005)

RFID can be used library circulation operations and theft detection systems RFID-based systems move beyond security to become tracking systems that combine security with more efficient tracking of materials throughout the library, including easier and faster charge and discharge, inventorying, and materials handling. (FAQ, 2004)

3.2 IR

IR (Information Resources) is knowledge and experience that is important to identify any themes or content. Compiled and processed by filtering image using sign language and other codes as well as recorded on many types of materials. The source is divided into three major categories.

- Printed materials such as books, journals, annual reports.
- Non- Printed materials such as CD-Rom, DVD, Video etc.
- Electronic resources

3.3 Database server

A database server forms the back-end or server component of a client-server system, which can be accessed by one or more clients, or front-end applications through the use of query language, typically MySQL. The server is responsible for updating records, ensuring that multiple accesses is available to authorized users, protecting the data and communicating with other servers holding relevant data. The client-end requests records and then modifies them, while the server tracks records for the client and adds new ones.

3.4 Java

Java is a general-purpose, class-based, object-oriented computer programming language that is specifically designed to have as few implementation dependencies as possible. Java applications are typically compiled to bytecode (class file) that can run on any Java virtual machine (JVM) regardless of computer architecture. Java of the most popular programming languages in use, particularly for client-server web applications. The language derives much of its syntax from C and C++, but it has fewer low-level facilities than either of them.

4. Development of Information Resources in Library Search System

System Development Life Cycle (SDLC) in reference to adaptive waterfall process as adopted and described by Dennis and Wixom. The major phase consists of Planning, Analysis, Design and Implementation.

4.1 Analysis and Design

Use-Case View

This view presents the users perception of the functionality provided by implementations of the system.

Use Cases

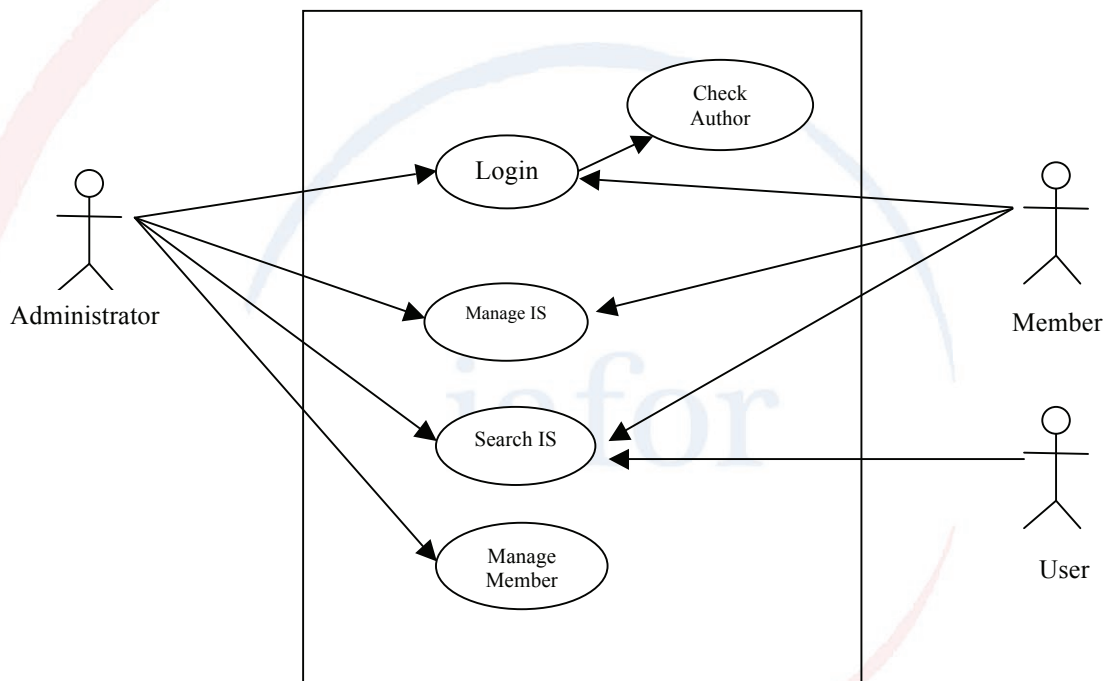


Fig. 1. Uses-case View

4.2 The System Architecture

The architecture of Information Resources in Library Search System can be purposely created as shown in Figure 2.

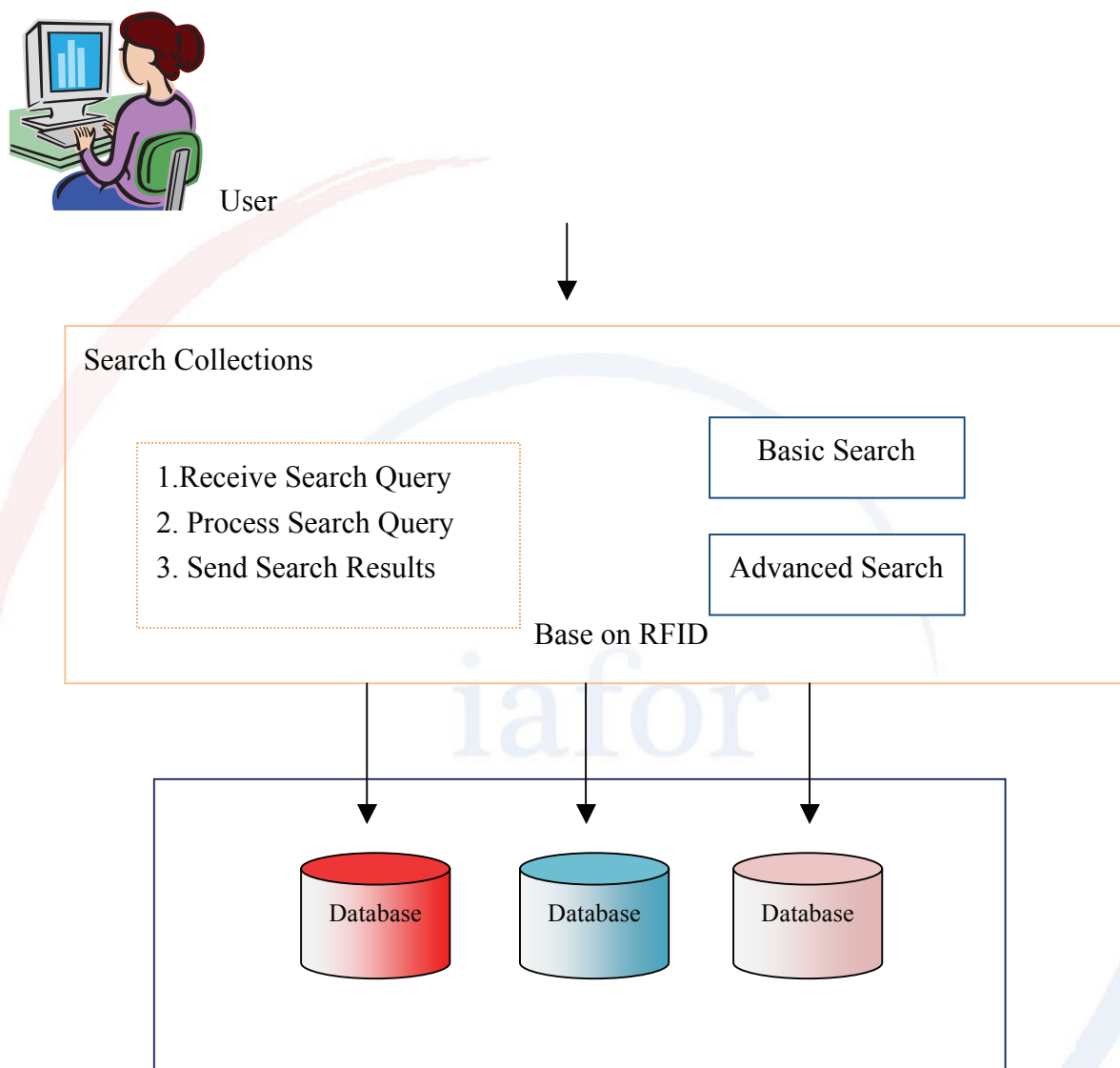


Fig. 2. Schematic diagram of the components and processes involved in the proposed web interface and the database

5. Results

The Information Resources in Library Search System is a web system which serves as an online central source of information on IT technology and research. This paper covers the development process and the content of the Information Resources in Library Search System base on RFID. The results was a development system that consists of 5 part as follows :

- 1) Functional Requirement Test
- 2) Functional Test
- 3) Output Validation Test
- 4) Usability Test
- 5) Security Test

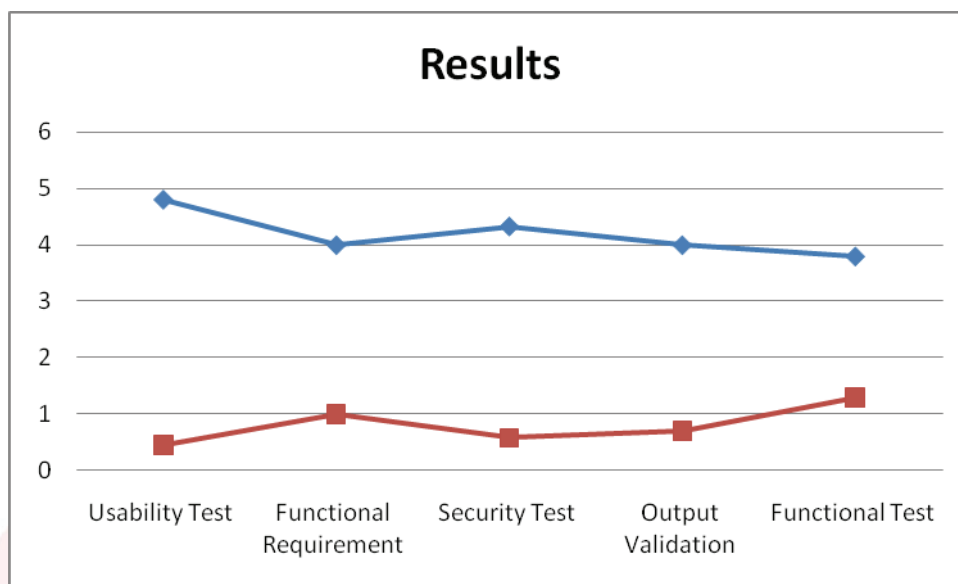


Fig. 3 Analysis results

The analysis of the evaluation of system efficiency by the experts found that the system efficiency was at the high level of five aspects with a mean of 4.18 and a standard deviation of 0.34 can be used. (Usability Test were at very good (\bar{x} =4.80, S.D. =0.45), Functional Requirement Test were at good (\bar{x} =4.00, S.D. =1.00), Security Test were at good level (\bar{x} =4.33, S.D. =0.58), Output Validation Test were at good (\bar{x} =4.00, S.D. =0.71), and Functional Test were at good (\bar{x} =3.80, S.D. =1.30).

6. Summary and Conclusion

The research methodology was composed of three steps. Firstly, the IR form and model were synthesized through gathering and elicitation IR. Secondly, the IR system was analyzed, designed, and implemented. Last, the IR system was tried on the experts. The processes we studied the related information, selected the application prototype based on studied criteria, and developed the system using JAVA language and MySQL database.

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A Low Powered NAS-based Web Server for Small and Medium Enterprises

Surasak Srisawan

Rajabhat Rajanagarindra University, Thailand

0179

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Abstract

Small and Medium Enterprise or SME are companies that has small number of personnel. In Thailand, SMEs outnumber large enterprise significantly. Both large and small enterprises have equal footing in term of their identities on the Internet. Some successful Internet-based firms do not operate brick and mortar stores and doing business solely through their web sites. However, due to their lack of funding, SMEs usually have no resources for Information Technology infrastructure such as dedicate servers and an air conditioning system to support the underlying infrastructure. This is impossible for most SMEs especially those in agriculture and handicraft areas, which are the majority of SMEs in Thailand. This study focused on identifying a low powered, low cost and always on solution viable for SMEs to operate their e-commerce web sites without premium infrastructure cost. Network-attached storage or NAS is suitable in this situation due to its low power consumption property. Its ARM-based processor has low TDP and can operate 24/7 without air conditioning environment. A Linux-based NAS with a 300MHz single core ARM CPU was modified to serve as a web server with PHP support. The result shown that it was able to serve static content to multiple clients concurrently but the performance was dropped dramatically once the connections contain CPU intensive calculations. Using faster and/or multi-core ARM CPU may improve this situation and should be study further.

Keywords: SME, E-commerce, Web Server, Embedded System, Energy Saving

1. INTRODUCTION

The advancement of information technology especially the technology related to the Internet has propelled the popularity of e-commerce all over the world. With e-commerce, even small enterprises or individuals can sell and deliver products to their customers directly through web sites. In Thailand, Small and Medium Enterprises or SMEs outnumber large enterprise significantly. In order to compete with larger companies, SMEs need to set up their e-commerce web sites. There are many third party web hosting options available but hosting their own web sites give the benefit of flexibility in term of software and database that can be used in the system.

Although the cost of computer, even the server specific hardware, was decreased and can be acquired easily, the power consumption of these general purpose computers is relatively high. Furthermore, Thailand is located near the equator thus make the average temperature above thirty degree Celsius in many areas. Therefore, air conditioning systems are usually required in order to operate web servers 24/7. However, SMEs usually have no resources to support the underlying infrastructure especially those in agriculture and handicraft areas, which are the majority of SMEs in Thailand.

Unlike x86 architecture, which is used in general purpose computers, ARM architecture used in embedded computer systems focuses on optimizing power consumption. Network-Attached Storage or NAS is an example of the systems using ARM processors. These systems usually run modified versions of Linux, making it possible to install additional services or making changes to the operating system itself. Thus, running a web server on one of the ARM-based embedded systems is possible.

To evaluate the suitability of a NAS-based system when it is used as a web server platform for SMEs, this research focuses on the comparison of the performance and power consumption ratio between a general purpose computer, which is used as a reference system, and a NAS-based system. Series of tests were performed and the result scores were analyzed in order to evaluate if the NAS-based system is a viable alternative web server for SMEs' workload.

2. RELATED WORK

A. Web Server Hardware

Benini and Micheli (2000) mentioned that it is important to design computer hardware to have a balance in computer power and performance. For example, a data center of an Internet Service Provider which has 8,000 servers requires two million watts of power or 250 watts per server on average. However, with recent improvement in term of computer architecture, recent embedded system architecture requires only 7-10 watts while retaining the processing ability similar to x86 architecture (Domeika 2008) although it is considerably slower than the general purpose processors available at the same generation.

Despite the fact that x86 architecture is generally available in the form of personal computers, the largest numbers of processors are embedded in electronic devices such as household appliances, cars and mobile devices. ARM is an embedded architecture that gained popularity since 2001 due to its low power consumption nature allowing it to run on battery (Sloss et al. 2004). Furthermore, a research by Wu Min-hua (2008) shown that the web server based on ARM architecture performed well on low complex tasks and had advantages on cost and power consumption over general purpose computers as well.

B. Web Server Software

This research compared the performance and power consumption of two systems running on x86 and ARM architectures. Linux was chosen as the operating system of choice because it is a widely used operating system running on web servers and support both x86 and ARM systems. The web server software used was Apache HTTP server, which was widely used both in term of the number of sites on the Internet and in term of researches (Robertsson et al. 2004; Liu, Niclausse, and Jalpa-Villanueva 2001; Bosque et al. 2007). In term of cost, Apache HTTP server is also an open source software that can be freely modify and distribute making it a good choice for a low cost web server.

C. Techniques Used to Evaluate the Performance and Power Consumption of Computer Systems

Generally, the performance of a computer system can be evaluated by measure the period of time used to compute a specific workload or the amount of work that can be completed during a specific period of time. To evaluate the performance of a web server, Barford and Crovella (1998) developed a method called Scalable URL Reference Generator: SURGE which can be used to evaluate real-life performance. A more recent method called Web traffic GeneratOr and benchmark: WAGON by Liu, Niclausse, and Jalpa-Villanueva (2001) focused on workload generation and the analysis of the parameters passing between servers and browsers. These methods were used as a framework for the tools used in this research.

The other aspect in this research was the power consumption measurement. Although it can be measured using a watt meter, software alternatives are also available. In this research, a software suite called Lesswatts.org by Gray (2008) particularly PowerTOP was used to collect the power consumption data from both systems. Hence, allowing the data collection process to be completed entirely using software.

3. EXPERIMENT

A. Hardware Components

Two computers were used in the experiment in order to evaluate the effectiveness and viability of the NAS-based web server. A general purpose computer constructed with commodity parts was used as the reference. The NAS box used in the experiment was AgeStar NSB3AS1T, which can be acquired locally at low cost. The detail of the hardware components are listed in table 3.1.

Table 3.1 Hardware components

| | Reference System | NAS-based System |
|--------------------------|------------------------|-------------------------|
| Processor | | |
| Model | Intel® Celeron® 2.0GHz | FA526id(wb) rev 1 (v4l) |
| Number of Core | 1 | 1 |
| Frequency | 2,000 MHz | 300 MHz |
| BogoMIPS | 3,999.91 | 153.19 |
| Architecture | x86 | ARM |
| Memory | | |
| RAM | 1,024 MB | 32 MB |
| Swap | 2,048 MB | 100 MB |
| Auxiliary Storage | | |
| Model | WD10EARS | WD10EARS |
| Capacity | 1 TB | 1 TB |
| Cache | 64 MB | 64 MB |
| Interface | SATA 3 GB/s | SATA 3 GB/s |
| Network | | |
| Type | Ethernet | Ethernet |
| Speed | 100 Mbps | 100 Mbps |
| Power Consumption | | |
| Overall System | 235 Watts | 13 Watts |

In term of raw performance, the NAS-based system was obviously inferior to the reference system with the processor operated at 300 MHz or 15% comparing to the Celeron processor. The BogoMIPS (Bogus Million Instructions per Seconds), which represents the relative operating cycle of Linux kernel, also shown that the NAS-based system was operating at 3.75% relative performance. However, due to the differences in architecture, the operating frequency and BogoMIPS are not reliable means to evaluate the real-world performance.

On the other hand, the NAS-based system had a clear advantage in term of power consumption. At overall power consumption rate of 13 watts, it consumed only 5.5% of the reference system.

B. Software Components

Unlike the hardware part, the software components installed onto both systems are relatively similar. Debian Linux was used as the operating system and the web server software was Apache HTTP server with PHP5 enabled.

The reference system is a standard general purpose x86 computer. Therefore, Debian Linux was installed conventionally. The Apache HTTP server and related programs were installed via apt, which is Debian package management system. On the NAS-based system, a method to install a

full version of Debian Linux on Agestar devices by Yohanes (2011) was followed. The standard apt-sources were added and all the software required to operate a web server were installed in the same manner as the reference system.

C. Data Collection Methods

To evaluate the workload of web servers, a load generator program was developed using the models from SURGE (Barford and Crovella 1998) and WAGON (Liu, Niclausse, and Jalpa-Villanueva 2001) as a guideline. The first part of the experiment was to evaluate the performance of the systems categorized by file types. This part was separated into two phases, static evaluation and dynamic evaluation.

1. Static evaluation.

By using HTML documents, the input/output subsystem of the web servers was evaluated. Both small and large files were used in this phase to perform the I/O intensive test on the systems.

2. Dynamic evaluation.

The second phase was designed to evaluate the computing power of the web servers using PHP scripting language to generate dynamic documents. Two kinds of PHP documents, low complexity and high complexity scripts were used in this experiment as the CPU intensive test.

The second part of the experiment was to evaluate the real-world performance of the systems. Normally, a web page consists of multiple components such as HTML files, images and scripts and the web server transfers multiple files simultaneously to the user requesting a web page. Furthermore, the nature of the Internet allows multiple users to connect to the web servers at the same time. Therefore, this part focused on evaluating multiple thread performance of the systems.

4. FINDINGS AND ANALYSIS

A. Access time categorized by file types

Four file types were used in the evaluation, small file, large file, simple script and complex script. The tests were performed three times for each file type and the access time required to complete the transfer was recorded as shown in table 4.1.

Table 4.1 Access time categorized by file types (Unit: Millisecond)

| | Reference System | NAS-based System |
|----------------------------|------------------|------------------|
| Small files ± SD | | |
| Round 1 | 22.56 ± 4.76 | 177.28 ± 137.39 |
| Round 2 | 19.73 ± 0.62 | 212.68 ± 160.41 |
| Round 3 | 19.69 ± 0.95 | 220.94 ± 192.10 |
| Average | 20.66 ± 3.12 | 203.63 ± 165.37 |
| Large files ± SD | | |
| Round 1 | 81.45 ± 14.58 | 173.45 ± 46.91 |
| Round 2 | 85.05 ± 6.44 | 172.36 ± 39.75 |
| Round 3 | 84.48 ± 2.52 | 180.51 ± 60.23 |
| Average | 83.66 ± 9.42 | 175.44 ± 49.66 |
| Simple Script ± SD | | |
| Round 1 | 6.44 ± 6.14 | 20.43 ± 12.87 |
| Round 2 | 4.98 ± 10.25 | 19.82 ± 7.32 |
| Round 3 | 3.89 ± 0.76 | 18.98 ± 7.56 |
| Average | 5.10 ± 6.97 | 19.74 ± 9.58 |
| Complex Script ± SD | | |
| Round 1 | 8.16 ± 1.61 | 241.72 ± 25.06 |
| Round 2 | 7.23 ± 0.80 | 241.35 ± 22.83 |
| Round 3 | 7.12 ± 0.59 | 240.10 ± 22.03 |
| Average | 7.50 ± 1.19 | 241.06 ± 23.27 |

The access time for each transaction shown above represented the period between the client start sending a request until the client finished receiving the requested file. On average, the NAS-based system took 203.63 milliseconds to complete transferring small files while the reference system took 20.66 milliseconds. In term of response time, it took 985.62% or almost 10 times longer to transfer a small file.

B. Access time categorized by number of threads

To evaluate real-life performance where multiple files are transferred simultaneously, the performance of the system based on the number of web server threads running at the same time was measured. The result is shown in table 4.2.

Table 4.2 Access time categorized by number of threads (Unit: Millisecond)

| | Reference System | NAS-based System |
|------------------------|------------------|----------------------|
| 2 Threads ± SD | | |
| Round 1 | 154.33 ± 14.05 | 550.00 ± 17.44 |
| Round 2 | 158.33 ± 15.53 | 587.00 ± 11.14 |
| Round 3 | 159.00 ± 15.72 | 550.67 ± 25.15 |
| Average | 157.22 ± 13.27 | 562.56 ± 24.52 |
| 5 Threads ± SD | | |
| Round 1 | 335.33 ± 114.03 | 1,530.67 ± 7.09 |
| Round 2 | 330.67 ± 0.58 | 1,402.33 ± 6.66 |
| Round 3 | 353.33 ± 0.58 | 1,568.67 ± 6.11 |
| Average | 330.27 ± 50.98 | 1,471.53 ± 86.74 |
| 10 Threads ± SD | | |
| Round 1 | 512.40 ± 46.46 | 2,707.70 ± 86.86 |
| Round 2 | 531.20 ± 3.49 | 2,718.70 ± 250.51 |
| Round 3 | 505.40 ± 12.88 | 2,651.40 ± 237.26 |
| Average | 516.33 ± 29.12 | 2,692.60 ± 200.46 |
| 20 Threads ± SD | | |
| Round 1 | 799.25 ± 49.33 | 11,373.15 ± 436.23 |
| Round 2 | 811.40 ± 22.52 | 8,426.05 ± 2,157.16 |
| Round 3 | 692.10 ± 88.60 | 17,203.45 ± 3,299.76 |
| Average | 767.58 ± 79.98 | 12,334.22 ± 4,312.08 |

In term of real-life performance, the access time of NAS-based system grew significantly when the number of threads increased. At 20 threads, the system took more than 10 seconds on average to complete the execution and transferred all files. Considering at the performance alone, it is obvious that the number of threads should not be expanded further.

C. The performance per power consumption ratio

It was obvious that the performance of the reference system was superior to the NAS-based system. However, when taking the power consumption into account, it turned out that the performance per power consumption ratio of NAS-based system was generally better than the reference, as shown in table 4.3.

Table 4.3 Performance per power consumption ratio (higher is better)

| | Reference System | NAS-based System |
|---------------------------|------------------|------------------|
| Small files | 1 | 1.83 |
| Large files | 1 | 8.67 |
| Simple scripts | 1 | 4.69 |
| Complex scripts | 1 | 0.57 |
| 2 Threads simultaneously | 1 | 5.08 |
| 5 Threads simultaneously | 1 | 4.08 |
| 10 Threads simultaneously | 1 | 3.49 |
| 20 Threads simultaneously | 1 | 1.13 |

Taking power consumption into consideration changed the overall impression of the NAS-based system where it won all tests but one. The strength of the system lied in the large file transfer department where it has 8.67 times efficiency comparing to the reference system. However, with the efficiency rate of 0.57, the complex script test clearly showed the weakness of the system.

Also, the efficiency of the NAS-based system was significantly reduced with the increasing number of threads. From the test, twenty was the maximum number of threads where the efficiency rate of the NAS-based system was higher than the reference system.

5. CONCLUSION AND SUGGESTIONS

In most tests, the NAS-based system required less power to complete the same task performed on a general purpose computer. However, the response time of the system was also higher across all tests. For small file transfer and simple script tests, the response time was higher but stayed under one second on average and should not affect the usability of the web site. On the other hand, the complex script test and running a large number of threads simultaneously greatly affect the responsiveness of the system.

Despite its weakness in term of raw performance, a NAS-based system can operate without air conditioning infrastructure. Its low power consumption requirement leads to low electricity cost. For SMEs in remote area where electricity system is sometimes unreliable, these properties allow the system to operate longer on a backup battery. Furthermore, the number of transactions performed each day for small and medium size business is relatively low and the overall responsiveness of the system should not be greatly compromised. Thus, a NAS-based web server could be categorized as a viable solution for SMEs with low daily transaction.

Currently, it is clear that ARM processors are gaining popularity. Recent processors used in hi-end smartphones and connected devices have multiple cores and operate at higher frequency. It is obvious that the technology will continue to evolve to the point where the computing power of a low-powered system exceeds the requirements for the web server operated in medium and large enterprises. For future researches, alternative forms of embedded computer systems such as mobile phones or tablets may be studied further in order to identify alternate solutions that can benefit SMEs while maintaining a sustainable ecology as a whole.

6. ACKNOWLEDGEMENT

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*A Model of Local Wisdom Transference Pertaining to the Making Palm Juice at
Paknam Village, Chachoengsao Province*

Phochet Thamsirikhwan

Rajabhat Rajanagarindra University, Thailand

0203

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Abstract

This qualitative research was aimed to study and develop a model of transferring local wisdom concerning how to make sugar palm juice at Paknam Village, Chachoengsao Province, Thailand. The research sample consisted of local people of a village in Paknam Sub-District, Bangkhla, Chachoengsao Province, which two local experts conveyed the knowledge of making sugar palm juice, 16 trainees who were members of the agricultural group, the Head of the village and the community developer of Paknam Municipality. Data and information were collected using document analysis, in-depth interviews, focus group discussion, and participatory action research. The local wisdom concerning how to make sugar palm juice at Paknam Village, Chachoengsao province had been done and transferred from generation to generation for a very long time, since 1934. There were six ways to transfer the knowledge of making sugar palm juice in the community, i.e., from the family, following models from neighbors, self-practice, from government agencies, and from schools. It was found that the model of knowledge transfer consisted three principles, i.e., a community based model, the learning process, and knowledge management. From this research and development, the model of transferring local wisdom how to make sugar palm juice was obtained and a community enterprise was initiated called “The Palm Juice Village” to reinforce and strengthen the community economically and socially. Finally, through this model, the local wisdom would be retained within the community.

Keywords: A model of transferring local wisdom, local wisdom, sugar palm juice.

INTRODUCTION

Rationale and Significance of Problems

From the past to the present, Thailand has had a variety of precious things such as ways of life, occupation, customs and tradition, arts and culture etc. In the old days, Thai people were in the agricultural society. The agriculture has been the foundation of Thai wisdom which comes from generation to generation for a very long time. Regarding the occupation of ancestors, it presents the identity of Thai, ways of life and local wisdom. Boonlong and Srirod (2011, p.1-4) stated that the consumption of human beings associate to the nature of location and climate. The experiences from the nature help human beings to think and develop devices, equipment and method to be useful for consumption and to have the quality. The quality factors are based on the familiarity of consumption of customs, tradition and beliefs within the community.

The National Education Act of 1999 and Amendments (Second National Education Act of 2002 and (Third National Education Act of 2010 defined the ways of providing education regarding promotion of strengthening the communities in Chapter 4, the ways of providing education in Section 29, stated that educational institutions in co-operation with individuals, families, communities, community organizations, local administration organizations, private persons, private organizations, professional bodies, religious institutions, enterprises, and other social institutions shall contribute to strengthening the communities by encouraging learning in the communities themselves. Thus communities will be capable of providing education and training; searching for knowledge, data, and information; and be able to benefit from local wisdom and other sources of learning for community development in keeping with their requirements and needs; and identification of ways of promoting exchanges of development experience among communities. Rajabhat Rajanagarindra University is the university assigned by the Office of the Higher Education Commission to be responsible for the project of One University One Province, taking care of three provinces in the east of Thailand. Duties include giving service to the society in providing education, arts and culture as well as being the knowledge source of locality to retain the local wisdom before it is gone.

The community of Paknam Sub-District, Bangkhla District, Chachoengsao Province is the place where local people make sugar from sugar palm trees. According to the information from Paknam Municipality and from local people, in the old days sugar palm trees were commonly found in Paknam Sub-District but now the occupation of making sugar from sugar palms is decreasing dramatically and it may be disappeared from the community in the future for many reasons because of a decrease of sugar palm trees.

In the past, the community of Paknam Sub-District, Bangkhla District, Chachoengsao Province was full of very high sugar palm trees, therefore, making palm sugar and sugar palm juice was the major occupation within the community at that time and it was also recognized the local wisdom. Making sugar palm juice is not only the occupation to earn money for living, but it is the way to retain the local culture and tradition also. However, in these days, the globalization has impacted Paknam Community like other areas in the eastern part of Thailand. There are many factories located near the community so a lot of teenagers and young generation move to work in the factory and neglect the occupation of making sugar palm juice which was created by their ancestors. Actually, sugar palm trees are economic plants and they are vital for Paknam community's ways of life. Making sugar palm juice is the local wisdom and the identity of Paknam community. In addition, sugar palm trees can be used for decoration as garden plants.

Palm Juice Village at Moo 11, Paknam Village, Bangkhla Sub-District, Bangkhla District, Chachoengsao Province is considered as the source of making sugar palm juice by the conventional method which has been conveyed from generation to generation for a very long time. In the old days, people made sugar palm juice for consumption in their household and gave to relatives but currently sugar palm juice is made for selling. Unfortunately, there are not many places for selling and the numbers of customers are not stable. People who do this occupation for living should be patient and have passion to do. They should have a special skill of climbing up sugar palm trees to get the water so they have to be very careful, otherwise, they might be risky to fall down from the trees. However, they earn a lot of money from this occupation.

Nowadays, the local people change their occupation from rice farmers and sugar palm juice makers to be mango agriculturists. However, because of many floods, a lot of orchards have been destroyed so many people change the occupation to be prawn farmers.

Currently, making sugar palm juice is also impacted to economics. People who have knowledge of how to make sugar palm juice is decreasing so there are not enough experts to convey the knowledge and there are not clear and defined models of local wisdom transfer on making sugar palm juice. A lot of adolescents move to work for other careers, especially work in the factories. Therefore, the local wisdom is nearly gone. Fortunately, government agencies give importance to conserving and promoting this occupation by processing the products as drinks and medicines etc.

From the reasons above, it is interesting to find the problems in the community and find the method to develop the models of local wisdom transfer on making sugar palm juice in order to retain the local wisdom within the community sustainably. The study of problem condition helps understand and obtain the models of development of local wisdom transfer on making sugar palm juice which related to value, culture of community emphasizing participation of all sectors with great balance. Moreover, engaging people to keep in mind about the culture of community, local wisdom and self-reliability which is truly consistent with the community's ways of life and consistent with providing the education in the graduate students' level, the course of Development of Learning Societies (GC1723) which aims to help students have the knowledge and understand the state and trend of globalization affecting families, communities, and nations. Therefore, the researcher is interested in finding the reasons why the number of people who make sugar palm juice is decreasing dramatically and how to promote this occupation sustainably for the community economy by A Model of Local Wisdom Transference Pertaining to the Making Palm Juice at Paknam Village, Chachoengsao Province.

OBJECTIVES

The objectives of this study were aimed to study the state of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province, and develop models of local wisdom transfer on making Sugar Palm Juice at Paknam Village, Chachoengsao Province.

RESEARCH METHODOLOGY

The qualitative research was conducted as follows:

Site Selection Study. In this research, the researcher studied the context of the area where the local wisdom transfer on making sugar palm juice would be studied. The multi-site study was conducted by theoretical sampling. The principle was that the site should be consistent with the social structure of conveying local wisdom transfer on making sugar palm juice. The informants were selected by purposive sampling in order that they could trust the researcher and were willing to give details in every aspect. Paknam Village in Chachoengsao Province is the place where people make sugar palm juice for earning a living the most at the present time so it is suitable site for study.

Stage 1. This research was to the study of state of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province. The researcher implemented as follows:

1) Document analysis of general information of Paknam Village and making sugar palm juice at Paknam Village, Chachoengsao Province. The researcher defined the scope to study of related documents such as books, documents, textbooks, journals, researches which related to the context of Paknam Sub-District, Bangkhla District, Chachoengsao Province, history, culture, local tradition and how to make sugar palm juice.

2) In-depth interview with two local philosophers and 16 trainees who were members of the agricultural group.

3) Analysis and synthesis of the state of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province, which obtained from the in-depth interview by content analysis.

4. Obtaining the result from the study of state of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province.

Stage 2. Determination of models of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province.

The researcher implemented as follows:

1. Focus group discussion was conducted to define development models of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province. There were two groups as follows:

The first group: Two local philosophers who conveyed the knowledge. They were selected by the researcher based on their knowledge of making sugar palm juice and because they were respected and recognized by the local people in the community and the second group: Trainees who obtained the knowledge of making sugar palm juice. The researcher selected 16 trainees who were members of the agricultural group, one village headman and one community developer of Paknam Municipality.

2. The information obtained from the focus group discussion was analyzed and synthesized to check the draft of development models of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province by content analysis.

3. Models of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province were defined by the researcher.

RESEARCH INSTRUMENTS

To implement the qualitative Research, the researcher collected the data and information by using the instruments of questionnaires, and performed an interview from May 2010 to

January 2012 under 4 methods of document analysis, observation, informal interview and focus group discussion. The reliability and completeness of information was investigated by the triangulation measurement in two ways: 1) triangulation measurement of information, 2) triangulation measurement of data collection. After that the information obtained from observation, interviewing and focus group discussion was analyzed by categorizing, comparing and summarizing. And the findings from the study were synthesized to get the conclusion and results associated to the research objectives.

RESEARCH CONCLUSION

1) The study of state of local wisdom transfer on making sugar palm juice. According to the information of qualitative research, it found that the occupation of making sugar palm juice has decreased gradually since 2003. Government agencies promoted and restored the occupation according to the nation's policy. After that, people returned to make sugar palm juice because the sugar was very essential in Thai cuisine, especially for Thai desserts. In the old days, this community was very well-known in making sugar palm juice. The sugar made by this community was called "Nam Tan Pak Nam". The findings were that the skill of making sugar palm juice was still remained in the community and transferred from generation to generation and became the models of behavior, thinking system, knowledge and beliefs which were ordered by the experiences contributed to the awareness and pride rooted by the local wisdom.

Factors influencing the local wisdom transfer on making sugar palm juice were Internal factors according to the qualitative findings, where the internal factors were obviously important in the community, comprising of expert, local philosopher, resource: sugar palms, reputation of making sugar palm juice in the community, habitations, group of relatives, community regulation, culture and local wisdom.

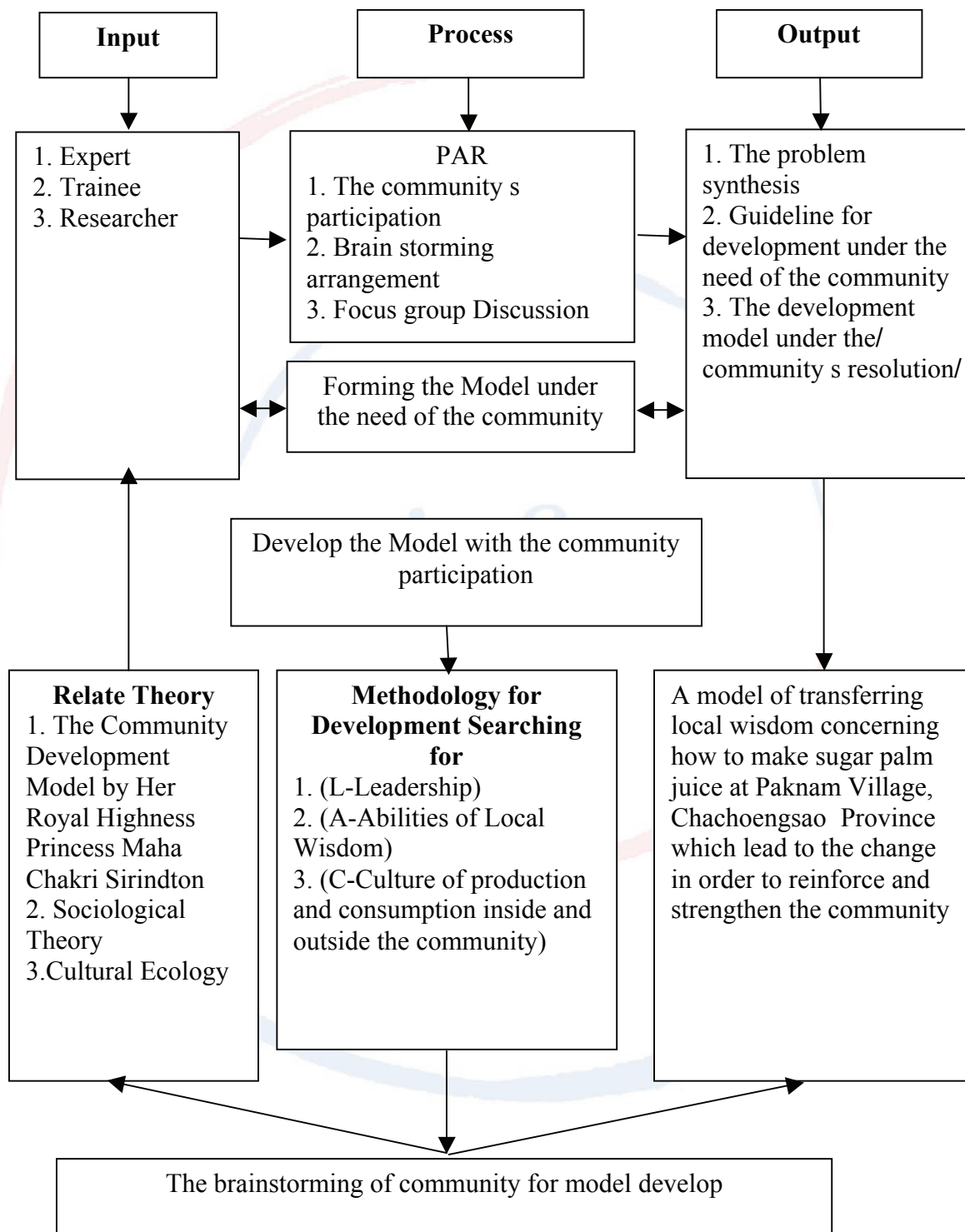
External factors:

According to the qualitative findings, government agencies, for example, provincial organizations, Provincial Industry Office, District Agricultural Extension Office, Public Health Office, Local Administration Organizations, Paknam Municipality, Non-Formal Education, educational and financial institutions had an important role in supporting the community to make sugar palm juice and help strengthen the community. According to the results, the internal factors to promote making sugar palm juice were: 1) leadership, 2) structure, 3) ability and 4) culture.

According to the synthesized results in each aspect, it was found that the factor to promote and convey the local wisdom of making sugar palm juice was the community leaders. They collaborated in implementing and moving the development and local wisdom transfer on making sugar palm juice in the community by cutting sugar palm trees and temporarily donating the land for establish Palm Juice Building which became a learning source as well as a center of doing group activities. In terms of social structure aspect, the community had natural resources which could be used as needed. There was a relative system. Everyone is aware of sharing the space. Habitation was in harmony with the nature. The sugar palm juice makers in the community had ability to develop the sustainable local wisdom. The community had the culture related to the natural environment.

2) Development of models of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province. The internal and external factors were used to construct

models of local wisdom transfer on making sugar palm juice by using Participatory Action Research (PAR). Local people, the researcher, and the local government agencies collaborated together in brainstorming, implementing and making solution. A model of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province is shown below:



I-1 A model of transferring local wisdom concerning how to make sugar palm juice at Paknam Village, Chachoengsao Province

DISCUSSION

A Model of Local Wisdom Transference Pertaining to the Making Palm Juice at Paknam Village, Chachoengsao Province was created from the Value culture of community and also the offence participation of all sectors, including Leadership (L), Structure (S), Ability(A), and Culture (C) with the strong factors of the community consisting of community expert, resource sugar palms, reputation of making sugar palm juice in the community, habitations , group of relatives that can from their teamwork, community regulation realizing on the value culture of community, culture of Thai style consumption and the local wisdom which comes from generation to generation for a very long time. Moreover there was a well support and co-ordinating from the government session including Chachoengsao Provincial Organization, Provincial Agricultural office, Bangkok Agricultural office and Paknam Municipality in term of super wising and Transference some essential information. Researcher was the advices to develop A Model of Local Wisdom Transference Pertaining to the Making Palm Juice at Paknam Village , Chachoengsao Province under the goal of having the community develop their abilities focusing on participation of the community to develop their community idea by brain storming , implementing and making solution. It was a Collaborative Learning which is a cooperative learning under the setting learning program and everybody share idea and experience to create new knowledge. There are 10 steps to take the factors of the community and government part to arrange a community base activity (Rojpitakkul,2007)Community Bose Model Holding a community s meeting , Following Consensus, Setting Goal and objectives. Concept, Learning for Development, Forming Learning Process, Setting Learning Network, Knowledge Management Learning, Making Decision and Doing for Development. The result of the model development will permanently Strong then the community depends on the well participant within community that has a strong organized group and well budget setting for advertising the community.

From the results, I would like to make a suggestion of follows:

- 1) In order to develop by using the instrument of local wisdom, the capability of community, the potential of community leader, the knowledge of local philosophers and agricultural group members should be considered. The government or private agencies should support and promote instead of controlling the community. The place for selling products should be provided. Giving advice to the community and creating network outside the community should be implemented.
- 2) The community and government agencies should arrange the learning system in the community by using the models of local wisdom transfer on making sugar palm juice in order to respond the community's needs and retain the local wisdom within the community.

EXPECTED BENEFITS

This research is to support the concept of development of models of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province. It is the ways of conserving and promoting local people in the community to realize the importance of source in the community, the importance of local wisdom from ancestors, being proud of their locality. The expected benefits from the research are as follows:

1. The ways of implementing providing of education to local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province.

2. Obtaining models of local wisdom transfer on making sugar palm juice at Paknam Village, Chachoengsao Province and promoting products of sugar palm juice by participation of local people in the community.
3. Conserving and publicizing the customs, tradition, culture and local wisdom on making palm juice at Paknam Village, Chachoengsao Province.

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Exploring Sites for Sustainable Development in Bang Khla, Thailand

Wichan Torobrum, Jariya Plangnok

Rajabhat Rajanagarindra University, Thailand

0204

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Abstract

The objective of this study was to explore specific sites, which could be developed and linked to the Bang Khla District of Chachoengsao's floating market for sustainable tourism. The study consisted of a survey of important places in the Bang Khla District and nearby areas. Merchants and local people were interviewed on the impact of the floating market, and 400 tourists were interviewed with a set of 5 item-Liket's rating scale questionnaires concerning their satisfaction with the tours, attractions and available facilities. It was found that people in the community wanted to preserve the natural environment as well as canals and rivers (mean = 3.91), which was a result of a social perspective. From an economic perspective, we studied opinion on the promotion of new products and employment levels (mean = 4.01). According to tourists' opinion, 76% of the tourists interviewed wanted to restore King Taksin the Great's Stupa Memorial, 74% wanted to develop Wat Pho Bang Khla, and 49% agreed to renovate the landscape, and open Wat Chaeng's ordination hall as a linkable tourist attraction for the floating market. According to this study, it was recommended that the development of the floating market should be done by the addition of tourist attractions and by increasing the size has implications for the local society, culture, economics and environment. These implications should be studied further so as to create a method for their prevention.

Key words: Sustainable, Bang Khla, tourism, floating market

Introduction

The statistics of tourist arrivals to Thailand have increased every year. In 2008, international inbound tourism was at approximately 14.83 million people. Tourism is an important element of the profit of the country and the operators of attractions who receive benefits. Improving the community through new products and development will lead to increased tourism.

Locations that could develop for supporting the tourism are places at the community such as nature, the market ancient, and the floating market. It is the ecotourism. The community should take part in promoting and developing all activities for tourism for instance the floating market at Amphawa, Samut Songkhram Province, where it has a peaceful waterway for cruise shipping to observe many activities including to observe a natural activity and habitat of an insect, a firefly, at night. There are several communities in Thailand seek to create tourist attractions for traveling in tourists (Office of Tourism Development, 2009).

The floating market at Bang Khla is one of four important locations in Chachoengsao province. It has been developed as a tourist spot to attract traveling in tourists in response to the policy of Local municipal authorities of Bang Khla since 2007, and it plays an important role to motivate local people boosting up the economics of Bang Khla District, resulting in an increasing in employment of the local people. The local government of Bang Khla has divided area for the development of floating market. The first site is on plaza in front of Bang Khla station and the second site is the floating style of floating market at Bang Pakong riverside. There are open areas for selling agriculture goods, seafood, beverage, and community products, where we can observe lifestyle of local people. The local made products are found to dominate in all locations, which they use natural materials for packaging such as banana leaf, lotus leaf, and pottery. The location at Bang Khla district is located adjacent to the Bang Pakong River, which is not a gateway for the communication. Therefore, tourists have less access to visit this site. However, local government authorities expect the establishment of floating market that it will attract traveling in tourists (local government authorities of Bang Khla district, 2009).

Once the traveling in tourists visit the floating market, it will create an impact on the economics of the community, where the social impacts that could change the lifestyle of local people, which the agricultural workers are the majority of the society. The local people are also performed their duties as traders. The economic impacts reveal that the local people have improved their quality of life. The benefit of local people is depended on the management of community. The environmental impacts are also affected the community, where the pollution derives from the traffic leading to the floating market and garbage that trash into Bang Pakong River.

The local government authorities have an idea that trader should sale their products on the floating services. The floating market has wide-open areas along the riverbank, which provide the opportunity for merchants to restore natural scenery for tourists. There are many activities for tourist to observe and participate in the floating market, such as walking along the path of riverbank. The visitors can dine on the boats, which serves as floating restaurants, while it cruises along the river to observe daily life's of local people in the community on Kao Rat Island. There are several tourist spots in Bang Khla municipalities, which can be developed tourist spots to attract tourists in conjunction with the floating markets.

There are several active floating markets locate in various provinces in Thailand, which also

create the deprecation of the people into the communality for those disagree groups. The problems sent to a negative image of the floating markets regarding tourism. A certain floating market had a severe impact to the environment. Studies on Damnoen Saduak floating market by Pewnim (2002) found that the floating market had developed from an existing local market located in an agricultural community to become a market catering almost exclusively to foreign tourists over a period of 30 years. It has been shown that Talingchan floating market is a new market, which was established in 1987. Attempts had been made by entrepreneurs from outside that took the opportunities to set up tourist business on private land next to the canal in the market, and exploiting the existing market reputation. They control the operation of the market by changing its landscape and activities to suit mass tourism. The functions of the market at the present time are much different from the old one, being alienated from the local community. There are both negative and positive impacts on tourism in the communities. Tourism brings water and air pollution as well as an improvement in public utilities, roads and community landscape. Economically, tourism provides more income and job opportunity. At Damnoen Saduak, entrepreneurs who are outsiders retain the major impacts on market trading regarding the amount of tourist-generated incomes. Socially, tourism brings both co-operation and conflicts especially when profits are high as in Damnoen Saduak. Overpricing of goods and services is quite common. The issue of how to manage tourism in a sustainable fashion concerning the floating market is a challenge one. The objective of this research study was to explore appropriate specific sites, which could be developed and linked to the Bang Khla district of Chachoengsao's floating market to make a sustainable tourism.

Methodology

The conceptual framework on the development of effective floating market in an appropriate specific site that could be linked to the floating market of Bang Khla district, Chachoengsao province was created and kept its activities in a sustainable fashion. The issues regarding economics and social impact, which might effect either positive or negative motivation, would be taken into consideration. The question of how to attract tourists to come to visit the floating market of Bang Khla, which open only on Saturday, Sunday, and holidays. The highest expectation for the number of tourists had been set up around 3,700 people per week.

The researcher team was consisted of two persons and one research assistant that supported works. The first step was dealing with the planning of research works, and conducted a survey of all locations in Bang Khla district and adjacent areas using a camera to take photos in order to select the interesting ones that would be used as sites for collecting data. The researchers also conducted a face-to-face interview by using a lecture style.

The instruments used in data collection were questionnaires by applied to those persons who were working at the floating market. The population samples were selected from local people who were staying at Bang Khla District and at the community nearby. The research had defined the objective according to problems and important information derived from reviewing of the community.

The questionnaires divided into two parts, i.e., Part one, which was dealing with the background information (checklist), and Part two that consisted of 15 questions regarding the effect to social and economics. A set of 5 item-Likert's rating scale was used in questionnaire as described by Siljaru (2005), where 5 = extremely affect, 4 = much affect, 3 = moderately affect, 2 = little affect, and 1 = seldom affect. The questionnaires were tried out to adjust the

instruments using a sample of 30 persons. The reliability of instrument was 0.82 following to Cronbach's alpha coefficient

The questionnaire were modified and developed as the instrument to be used in data collection by using checklist style with those people who were working at the floating market at Bang Khla district, where the issues of questionnaires were dealing with the effect created by the opening the floating market and exploring the appropriate sites to develop the floating market which would lead to be a sustainable development in Bang Khla district. Background information of the population sample was taken from everyone who worked at the floating market. A total population of 100 person consisted of 45 persons selling goods on the floats, while 41 persons were selling and 14 persons were staying in nearby areas. The sellers that worked at the floating market at Bang Khla consisted of 86 persons in total, where 56 persons were selling food, 22 persons selling souvenir, 2 persons selling some water, drinks, and Thai Massage (Nuat Phaen Thai).

The information and data were analyzed using the software of the SPSS program, where the values of Mean (\bar{X}) and standard deviation (S.D.) were used in conclusion and suggestion for further studies.

Results

The results of analysis of all information concerning the impact on social and economics indicated that it reduced unemployment rate with alleviating the poverty in the community. Local people had good attitude to tourists, taken care of natural habitats and river, taken care of important locations regarding history of the community, learnt about the local people and tourists. There was a reduction in the number of people migrated to and from the local area. The community was very active in contributing to the development of the floating market at Bang Khla district. The Tourism Authorities assisted training of the professional personnel's to gain more knowledge regarding the management skill and business to pass it to local people. The total rating at 3.91 suggested the opinion was at much level. The best way to have impact on economics was putting efforts to create the new products commercially available in the floating market, which yielded a benefit to members of the community. The quality of life of the local people would be improved with less unemployment rate. The total rating of the employment growth in Bang Khla district and nearby communities was 4.01, which supported that the opinion was at much level.

Results of searching for the historical important locations, which would be used as tourist attractions in Bang Khla district and nearby areas are summarized in Table 1.

Table 1. The description of four important sites and the distance between the interesting site and the floating market at Bang Khla district.

| item | location | The distance of important location from the floating Bang Khla (KM.) |
|------|-----------------------------|--|
| 1 | Wat Chaeng Bang Khla temple | 0.10 KM. |
| 2 | Wat Pho Bang Khla temple | 1.80 KM. |
| 3 | The King Taksin pagoda | 1.20 KM. |
| 4 | The King Taksin monument | 0.80 KM. |

Results of analysis of the participants' opinion showed that they agreed with the idea of the development of landscape as the first priority, where the intendance of Wat Pho was agreed to open the monastery and temple for public to visit and pay homage. It was found that 75 percent of participants supported the improvement of King Taksin Pagoda with passable access to the floating market. It was shown that 74 percent of participants agreed to improve Wat Pho at Bang Khla district as a second choice, where the visitors could observe the flying foxes and Ancient temple. The flying foxes are the fruit bats that are inhabitants of Wat Pho at Bang Khla. Visitors can visit Wat Pho at Bang Khla by car or by boat. The last choice for the development of landscape was Wat Jaeng at Bang Khla district, which supported by 49 percent of participants.

Result of searching for the interested locations in Bang Khla district and nearby areas revealed that Wat Pak Nam and Ganesha Park, which could link to the floating market at Bang Khla. Wat Pak Nam had the golden church and located 2.1 kilometers from the floating market. The Ganesha Park had a huge standing sculpture of Ganesha, which located not far from Bang Pakong riverside where it could also travel via the waterway to Prachinburi province. The Ganesha Park is located 8.3 kilometers from the floating market. The improvement of landscape around the Ganesha Park was underway since 2012. Tourists could travel to Wat Pak Nam from the floating market at Bang Khla by boat or by car, which was about 2.1 kilometers away from the floating market. Another tourist attractive spot was the sugar palm village, where tourists could observe various activities of producing edible products of sugar palm and souvenirs. This tourist attractive spot was located 3.4 kilometers from the floating market at Bang Khla. The Suanpalm Farmnok (Bird Park) was one of other interesting spot, which was agreed by the participants to develop as a tourist spot to attract visitors after visiting the floating market at Bang Khla, where it located about 8 kilometers from the floating market. If tourists kept traveling on the same road for about 16.5 kilometers from the floating market at Bang Khla and turn right, they would find the Koom Wimarnadin, where the earthenware was produced. This was the place where visitors could observe the processing of earthenware production. If the visitors kept driving pass Suanpalm Farmnok and turned left, they would see Kon Kaw temple, which located about 12.5 kilometers from the floating market at Bang Khla. The Kon Kaw temple had set up a poster in front of the temple, which was mentioned the temple as a diamond of the eastern Thailand. There were other three temples located along the 304 road running from the floating market at Bang Khla, where Kon kaw temple was located, i.e., Saman temple that was located 13 kilometers from the floating market, where there was a pink color Ganesha stand in front of the temple; Wat Samet Nuea, which had an ancient church of 130 years old located at the distance of 9.6 kilometers from the floating market, and Wat Haosuan, where the church was built using stainless steels located adjacent to Wat Saman with located about 21.3 kilometers from the floating market.

It was found that 44 percent of participants came in as a group of family to visit the floating market at Bang Khla, where 9 percent was stayed overnight with 61.1 percent stayed for one night and 38.9 percent stayed for 2 nights. It was also shown that 42.5 percent of visitor come directly to the floating market at Bang Khla, while 66.96 percent of them come to the floating market as the second stop where they visited Wat Sothorn Wararam Woraviharn Temple as the first stop, 60 percent of them visited Baan Mai, which was constructed 100 years old, located 25 kilometers from the floating market. It was found that only 38 percent of the target population of visitors received tourist information provided by public relation authorities, while 67.9 percent received it from friend. Several other sources of tourist information had been delivered information to publics regarding the tourist attraction spots, i.e., 19 percent from radio / television, 12.5 percent from the Internet, and 0.6 percent from other media. It

was found that 71.5 percent of visitors kept on going continuously to other tourist attraction spots after visiting the floating market at Bang Khla, 28.5 percent went to Wat Pho, 42 percent went to Suanpalm Farmnok, and 11 percent went to Wat Pak Nam. Results of an analysis are summarized in Table 2.

Table 2. The complacency to travel the floating market.

| item | | mean |
|------|--|------|
| 1 | The complacency arriver to the floating market have convenience / security / there are signs | 4.19 |
| 2 | Interpretation such as sign / symbol, knowledge, information | 3.93 |
| 3 | Food shop and drinks shop are available for money / suitable / value / quality. | 3.86 |
| 4 | The toilet has clean / adequate / convenient to use. | 3.77 |
| 5 | The car park has lager, adequate and safety. | 3.75 |

All issues of questionnaire about to travel had average of complacency at 3.88 level wherewith it had meaning much complacency.

Table 3. The complacency to travel the floating market at location.

| item | | mean |
|------|---|------|
| 1 | The location of the market has suitability. | 4.02 |
| 2 | The grounds are beautiful and clean place to visit in harmony with the surrounding landscape. | 3.85 |
| 3 | The float had beauty, safety and appropriate number. | 3.85 |
| 4 | The set plan and categories of products in market. | 3.78 |
| 5 | The activity in the floating market (the tourism water way) | 3.76 |
| 6 | The identity of the floating market | 3.67 |

All issues regarding the locations had an average of complacency at 3.82 level whereas it had an average value as much complacency.

Results of an analysis regarding attempts to find the complacency for services of operators at the floating market are summarized in Table 4.

Table 4. The complacency for services to travel to and from the floating market.

| item | | mean |
|------|---|------|
| 1 | The service mind | 3.79 |
| 2 | The suggestion and answer questions clearly. | 3.72 |
| 3 | The dealer had eloquence polite and friendly. | 3.70 |
| 4 | Services with convenience. | 3.70 |
| 5 | Enthusiasm and willingness to take care. | 3.66 |

All issues in questionnaire regarding services for visitors had an average value of complacency at 3.71 level, where it had the average value as much complacency.

Conclusions/and Discussions

The floating market at Bang Khla is a new tourist attraction spot, which has been established at Bang Pakong riverside, Chachoengsao province. It has been taken care by Bang Khla government authorities the same as the floating market at Talingchun as described by Pewnim (2002). The floating market has been established on a landscape of the government as a site for buying food and products provided by local people to support local economics. Results of survey and data analysis suggested that the appropriate locations to be considered to develop as a tourist attraction site that is linkable to the existing tourist attraction site of the floating market at Bang Khla district, Chachoengsao province. The first recommended tourist location site should locate near or under the domination of Thumbol Bang Khla, in which there are several interesting tourist attractions, i.e., the King Taksin pagoda, Wat Chaeng Temple at Bang Khla, and Wat Pho temple at Bang Khla. It was shown that 42 percent of participants indicated that they preferred to travel to Wat Pho at Bang Khla using waterway and by car, where they could observe the flying foxes that inhabited at Wat Pho at Bang Khla. The crowd of flying foxes hanging their heads on the branches of tree during the daytime at Wat Pho at Bang Khla is extremely interesting to see. Visitors can observe a flock of flying foxes flying in the sky that look like a smoke blowing by the wind. The main propose of visitors is to pay homage to a Buddha image and observe the gathering of a crowd of flying foxes. The dominance of this given location can be linkable to the nighttime viewing the aforementioned phenomena, which draw the attention of tourists to stay at Bang Khla district. The second choice of location to be developed as a tourist attraction spot that can be linkable to the floating market at Bang Khla is Wat Chaeng at Bang Khla. It was told by old people who lived during the reign of King Phra Buddha Yodfa Chulaloke that the King Rama I had sent the troop to attack the Cambodia. The troops were traveled past that location at a dayspring. The King gave a permission to build the temple and coiled as Wat Chaeng, where the word "Chaeng" was meant as a dawn in Thai. The current interior decoration in front of the church shows figure of the reign 8 with the signature of Ananda Mahidol Siamin. The architects were 10 technicians whom were massacred later. There was a large sculpture of giant at Wat Luang, where the sculpture was made in a Thai art style mixed with Chinese art. Wat Chaeng temple is approximately 100 meters away from the floating market but it is currently difficult to access from the floating market. According to the study of Tang Tung (2003), Wat Chaeng temple was closed without any attempt to renovate it. It is very interesting to note that tourists from European countries want to study the history and culture of the people around this historic site. The motivation was stimulated from lifestyle of people who live along the riverbank and its environment of the floating market at Bang Khla district as described by Jutamanee et al. (2003), whereas the tourist was motivated by the ancient culture of the floating market. These kinds of environment and culture arouse the happiness of tourists. The study of Lapluechai (2003) revealed that tourists wanted to maintain the lifestyle of local people more than other things.

The usual route of traveling to the floating market at Bang Khla district is very convenience, where they spend less time at the floating market. The tourist will subsequently take a boat cruise to Wat Pak Nam to observe the golden Buddhist temple, cruising further to the Ganesha Park at Bangtarat village, and return to Wat Pho at Bang Khla to observe the flying foxes. The boat is cruising to and around Kao Rat island, where the management of waterway system is taken place. The most important point of tourism is that local people should set up the committee for the management of the tourism activity.

The home stay tourism activity at the floating market attracts low number of tourists because

the location is not suitable for the promotion and received less support from the government. This is quite relevant to the finding that tourists receive information concerns the floating market and its activity at 38 percent, which is done through radio and television, while most of information is transferred through friends and acquainted people. This finding is agreed with the findings of Asavapromtada (2007), which suggest that the expectation for tourism management at Ampawa floating market is preferred to receive male tourists than female tourists. The information concerns the travel to Ampawa floating market released by the Tourist Authority of Thailand could reached tourists less than by friends according to the study of Putdadee (2000). His findings showed that the tourist information concern the floating market at Talingchan reached the tourists at a low level at 56 percent.

The opinion of tourists concern the requirement for complacency to travel to the floating market at Bang Khla district, which extracted from the questionnaire and interviewing suggested that the convenience, comfortable, safety, clear label, brochure, restaurant, drink at stall shop, reasonable price, cleanliness and good quality, the available of clean toilet, parking space available for customers, with the sum of estimation was at the level of 3.88, which was equivalent to the much level of complacency. The studies of TangTung (2003) recommend that there was a need to develop all facilities at the floating market site, including the identity of the products. The walking street along the riverbank should be provided. The government authorities of Bang Khla village should manage to open the floating market on Saturday, Sunday, and holiday. It was found that most of traders were local people that comprised 81.4 percent, where 18.6 percent were those people whom staying nearby in Chachoengsao province. The local people own the lovely residential areas and want to take care of natural environment according to the studies of Pewnim (2002). The studies revealed that the effect of tourist to the floating market were the same as that of the Talingchan Floating Market, resulting in the joint efforts of local people and the government authorities in supporting the development of sustainable tourism. The self-care security management should be complied by the community, which will create jobs for local people. The joint committee of the floating market should put efforts to promote local products and tourism activities in various ways. The people in the community should participate in the promotion activities. The conditions of floating market at the time of the study was under the control of the government authorities since it situated in front of the district buildings. But there is a need to develop toilets in a nearby location not far from the floating market, where 7 percent of participants suggested for this complacency with the little level of complacency, while 5 percent suggested little level of the complacency concern parking space for cars. There were 54 restaurants, 22 souvenir shops, and 7 drink stalls.

The opinion concerns the management of tourist site of the floating market at Bang Khla district should be aware of the beautiful scenery, cleanliness, natural harmony of landscape, the floating shops should have safety precautions, and it should have disposal bin for the garbage. It was shown that 3.82 level was at much mean related to the competency of the management the floating market. Since the location of floating market at Bang Khla is situated near Bang Pakong River, which is a natural resource for life and it is used as waterway for traveling of people in the community, where it is suitable for fishery. The floating market is situated on the island, where visitors can have boat cruising around the floating market and observe the lifestyles of local people. The competency of total services of officers, such as the service minds, service suggestion, to answer question, enthusiastic and willing to take care, eloquence polite and friendly, was at 3.71 level at much mean. Most of the officers were the local people who volunteer to work in the service sections.

The Bang Khla Subdistrict municipality had enlarged the marketing scope and allowed vendors to sell at the new built pontoons. Being compared the effects from other floating markets in Thailand; the enlargement of the market was considered and guided for better solutions on environmental effects and local people's lifestyle in the foreseeable future in order to prevent any kind of problems.

Benefits

The results of this finding will lead to the development of the floating market at Bang Khla and make it to be a sustainable floating market. All information concerning tourist information should be planned for the management of distribution to reach tourists or visitors as much as possible.

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*A Study of the Protein Profile Related to Sweetness during the Developmental Stages
of the Nam-Dokmai Mango (Mangifera indica)*

Thitiporn Booranasrisak*¹, Janthima Jaresittikunchai*², Narumon Phaonakrob*²,
Sittiruk Roytrakul*²

*¹Rajabhat Rajanagarindra University, Thailand, *²Genome Institute, National Center
for Genetic Engineering and Biotechnology (BIOTEC), Thailand

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Abstract

Sugar production levels and protein profiles of *Mangifera indica* were examined in order to study their relationship during development. Sugar levels were analyzed over eight developmental stages using an ATAGO hand refractometer. The results showed that sugar was detected at stage two and remained at the same level through stage five, increased at stage six and seven, and reached a maximum at stage eight. Protein profiles, determined by proteomics, indicated 98 variably expressed proteins. These were found to respond to stress (16%), signal (13%), transport (11%), respiration (4%), carbohydrate metabolisms (8%), lipid metabolisms (6%), protein metabolisms (3%), secondary metabolisms (2%), cell division (3%), ripening (1%), transcription (28%) and translation (5%). Eleven proteins showed a similar trend in expression to sugar production suggesting an involvement in the development of sweetness.

Keywords: Nam-Dokmai mango, sweetness, Proteomics, protein profile.

INTRODUCTION

Mango, *Mangifera indica* L., is originated in Burma and India and is commonly grown in most tropical regions of the world. Thailand ranks fourth in the world for their production after India, China, and Mexico (Tharanathan et al., 2006). Chachoengsao is one of Thailand's chosen provinces to cultivate mangoes for marketing and export. The majorities of mangoes in Chachoengsao province are grown mostly in Bang Khla district. The mango season is usually abundance in March and a mango festival is being held annually in Chachoengsao province.

To date, there are over 200 commercial vernacular names of cultivars of mango in Thailand, i.e., Nam-Dokmai, Raed, Chok-Anan, Chao-Khoon-Thip, Falan, Ok-Rong, Thong-Dam, and etc. (Eiadthong et al., 1999). 'Nam-Dokmai' is the most popular one among those mangoes of Thailand, thus this cultivar is chosen as a representative mango to study in this investigation. It has an exceptional appearance and taste. The fruits are long, slender and sigmoid in shape. The young fruit has a creamy-green skin and its flesh is crispy with sour taste, while the ripe ones change to a soft yellow. The flesh of the ripe mango is soft and juicy, with an extreme sweetness and aromatic flavor (Ketsa et al., 1999). The Office of Agriculture Economics, Ministry of Agriculture and Cooperatives had recently reported that there was an increasing tendency of exporting mango in three consecutive years from 2010 to 2012, where the costs of export were around five hundred millions baht in 2010, seven hundred millions baht in 2011, and reached the maximum plateau in 2012 at nine hundred millions baht (equivalent to 30 millions US Dollars).

The mechanisms of sugar production during ripening stages are of interesting. Many studies in recently years have focused on single or a few genes related to the ripening of mango (Li et al., 2012; Shalom et al., 2011). It has been shown that those gene expressions were still far from comprehensively elucidating of their mechanisms. It was also shown that studying the Proteomic Code of those genes could solve this problem. The Proteomic Code is a set of rules by which information in genetic material is transferred into the physicochemical properties of amino acids and determines how individual amino acids interact with each other during folding and in specific protein-protein interactions. This is an approach that comprehensive survey of all proteins expressed at an interesting time, at any conditions, in any organism. Komatsu and Ahsan reported that the major advantage of proteomic code is that it focuses on the functional translated portion of the genome (2009).

An analysis of proteomes is a powerful tool for determining the roles and functions of individual proteins in plants. Several studies on proteomics concerning many types of plant tissue have been carried out. By proteomics approach in previous works, stem cell wall proteins of alfalfa were extracted and more than 100 proteins were identified and used to generate proteomic reference maps for cell walls of alfalfa (Watson et al., 2004). Furthermore, some researches used 1D and 2D electrophoresis to size-separated protein from apricot and identified proteins by MALDI-TOF-PMF and nanoLC-ESI-LIT-MS/MS to found out proteins that related with its palatable and nutrition (Ambrosio et al., 2013). Our latest work about Proteomics is in physic nut, a biodiesel economic crops. We found 4 proteins during seed development were altered between the developmental stages of the kernels in a broadly similar pattern as the level of most fatty acids (Booranarisak et al., 2013). The latest work about proteomic in mango, protein was extracted by phenol and separated by 2D gel before identified protein spots by LC-MS/MS. Proteins related to fruit quality, putative protein involved in color development and pulp softening, were found (Andrade et al., 2012).

However, working with peptides is highly complicated, where several steps, i.e., gel electrophoresis, excision of the individual protein bands, and in-gel digestion with a protease can reduce sample complexity (Delahunty and Yates, 2005). A Proteomics approach in combination with the SDS-PAGE observation is modified to use in this study, which in-gel digestion with trypsin and LC-MS/MS technique help to understanding related mechanisms. The Proteomics code illustrates the protein expression pattern associated with the mechanisms of sugar production during ripening stages in mango flesh.

This study was aimed at determining sugar production levels and protein profiles of *Mangifera indica* in order to study their relationship during development.

MATERIALS AND METHODS

Plant materials

All fruit samples of mango were collected from an orchard in Chachoengsao province, Thailand during March to April, 2012. All fruits were segregated into eight stages of the development according to the time intervals or days after flowering and the morphological appearance of the fruits. The characteristics of the fruits are summarized as shown in Table 1. All fruits were stored at -80 °C to preserve proteins until use.

Table 1. The eight developmental stages of mango fruits defined by the developmental time intervals (days after flowering) and morphological appearance of the fruits.

| Stage of development | Time interval (days) | Fruit texture | Fruit color |
|----------------------|----------------------|---------------|---|
| 1 | 15 | hard | Green |
| 2 | 30 | hard | Green |
| 3 | 45 | hard | Green |
| 4 | 60 | hard | Green |
| 5 | 75 | hard | Green |
| 6 | 90 | soft | Brown spots at the upper pole, yellowish-green |
| 7 | 105 | soft | Brown spots at the upper pole, yellowish-green and orange at the lower pole |
| 8 | 120 | soft | Brown spot all over the fruit, yellow peel and orange at the lower pole |

Mango flesh sugar determination by refractometer

The skin of fresh fruit was peeled off and discarded, where only flesh from the individual developmental stages of mango fruits was milled using a laboratory mortar and pestle. The solution was subsequently analyzed by ATAGO hand refractometer in triplicate manner.

Mango flesh protein analysis by proteomics

Protein extraction

The flesh tissues from the individual stages were ground into fine powder in liquid nitrogen with pre-cooled mortars and pestles, and were subsequently dissolved in one ml of 0.1%

(w/v) SDS. Each protein mixture was precipitated with cold acetone overnight at -20 °C. The protein concentration of each sample was determined by the method of Lowry *et al.* (1951) using serial dilutions of bovine serum albumin (BSA) as the protein standard.

SDS-PAGE Analysis

Each 10 g protein sample was mixed with a loading buffer and loading dye, and was subsequently heated at 95 °C for 10 min before loading. The sample was resolved through an acrylamide resolving SDS-PAGE. Gel electrophoresis was carried out at 30 Volts for the stacking gel and 50 Volts for the separating gel. The gel was stained by Coomassie Brilliant Blue.

Protein Identification

Protein bands from the Coomassie Brilliant Blue stained SDS-PAGE gels were excised manually according to the molecular mass range. Each selected protein band was cut from the gel and then the slice was cut into small pieces and was isolated by in-gel digestion. The peptides were extracted from the gel plugs after digestion, and then were injected into the Ultimate 3000 LC system (Dionex) coupled to ESI-Ion Trap MS (HCT ultra PTM Discovery System, Bruker Daltonik) with electrospray. The MS/MS spectra were analyzed with DeCyder MS 2.0 differential analysis software (GE Healthcare). The analyzed MS/MS data from DeCyder MS was submitted to a database search against the NCBI database using Mascot software (Matrix Science, London, UK, (Perkins *et al.*, 1999). All proteins were functionality identified by GoCat (<http://eagl.unige.ch/GoCat>).

RESULTS

Sugar determination

The detected sugar profiles of mango flesh of individual eight developmental stages are summarized in Table 2. It was noticed that the sugar content was gradually increased from stage II (8.00 degree Brix) to stage VII (12.40 degree Brix), and finally at 25.97 degree Brix in the last stage. One degree Brix was defined by one gram of sucrose in 100 grams of solution or as percentage by weight (Das *et al.*, 2012).

Table 2. The quantity of sugar detected in all individual developmental stages and their standard deviation values. All data were the average values derived from triplicate experiments.

| Developmental stage | Sugar (degree Brix) | Sucrose (%w/w) | Standard Deviation |
|---------------------|---------------------|----------------|--------------------|
| 1 | 0.00 | 0.00 | 0.00 |
| 2 | 8.00 | 8.00 | 0.00 |
| 3 | 8.07 | 8.07 | 0.12 |
| 4 | 8.33 | 8.33 | 0.12 |
| 5 | 8.33 | 8.33 | 0.12 |
| 6 | 10.40 | 10.40 | 0.53 |
| 7 | 12.40 | 12.40 | 0.17 |
| 8 | 25.97 | 25.97 | 0.06 |

Protein analysis

Protein concentration determination

The total proteins, which were extracted from 500 mg of mango flesh and the protein concentration was determined according to the method of Lowry. BSA standard curve, which was plotted between OD₇₅₀ on Y-axis, while BSA concentrations ($\mu\text{g/ml}$) were plotted on X-axis, had $R^2 = 0.9757$. Protein concentrations ($\mu\text{g protein}/\mu\text{l}$) of eight ripening stages of mango were calculated from an equation $y = 0.0216x + 0.0832$ and are summarized in Table 3.

Table 3. Showing results of protein concentrations of eight developmental stages of Nam-Dokmai mango.

| Developmental stage | $\mu\text{g protein}/\mu\text{l}$ |
|---------------------|-----------------------------------|
| 1 | 14.20 |
| 2 | 11.29 |
| 3 | 15.73 |
| 4 | 10.31 |
| 5 | 3.05 |
| 6 | 10.78 |
| 7 | 8.00 |
| 8 | 14.20 |

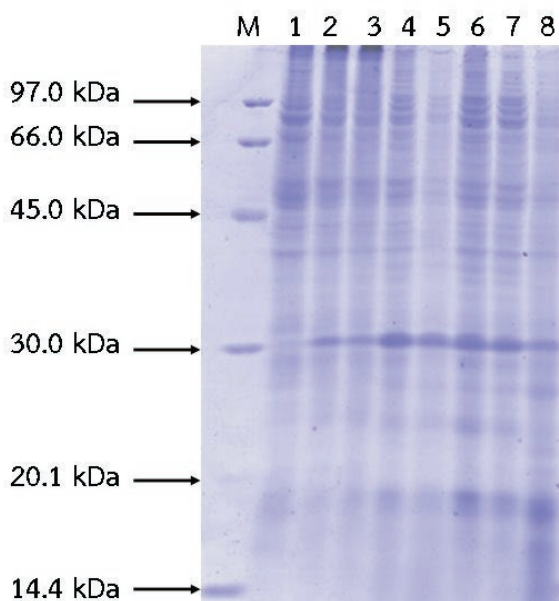
Optimization of Protein Loading for SDS-PAGE Analysis

All protein concentrations were determined by Lowry assay, where 50 μg of all protein samples were used for further experiments.

SDS-PAGE analysis

The protein samples of eight developmental stages were analyzed by 12.5% SDS-PAGE, and the gel was visualized by Coomassie Brilliant Blue R250 staining as shown in Figure 1. When SDS-PAGE gel was observed by eye, it was found that the intensity of many protein bands with in a range of 14.4-30.0 kDa had increased (up regulated) but the intensity of some protein bands had decreased (down regulated). Then these gel ranges were selected to analyze by LC-MS/MS in the next steps.

Figure 1. Showing the characteristics of 12.5% SDS-PAGE of 50 μg protein of 8 developmental stages of Nam-Dokmai mango. Lane M represents standard molecular weight marker; Lane 1-8 represent μg protein of 8 developmental stages of Nam-Dokmai mango.

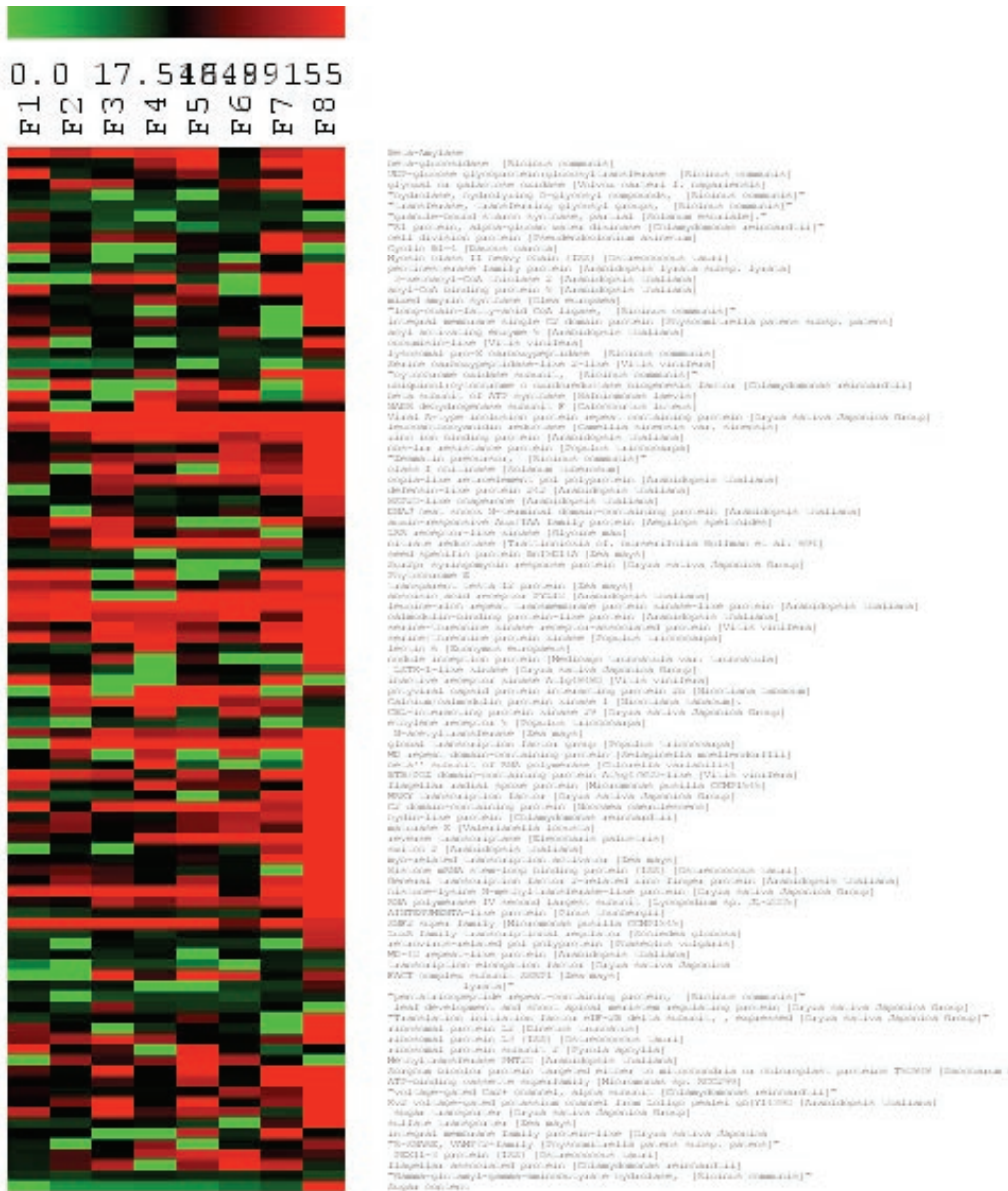


LC-MS/MS and DeCyderMS

All gel bands in the range of 14.4 to 30.0 kDa were excised to the molecular mass range of protein standard markers. The tryptic in-gel digestion was subsequently performed. The extracted peptides of each molecular mass range sample were individually injected to LC-MS/MS.

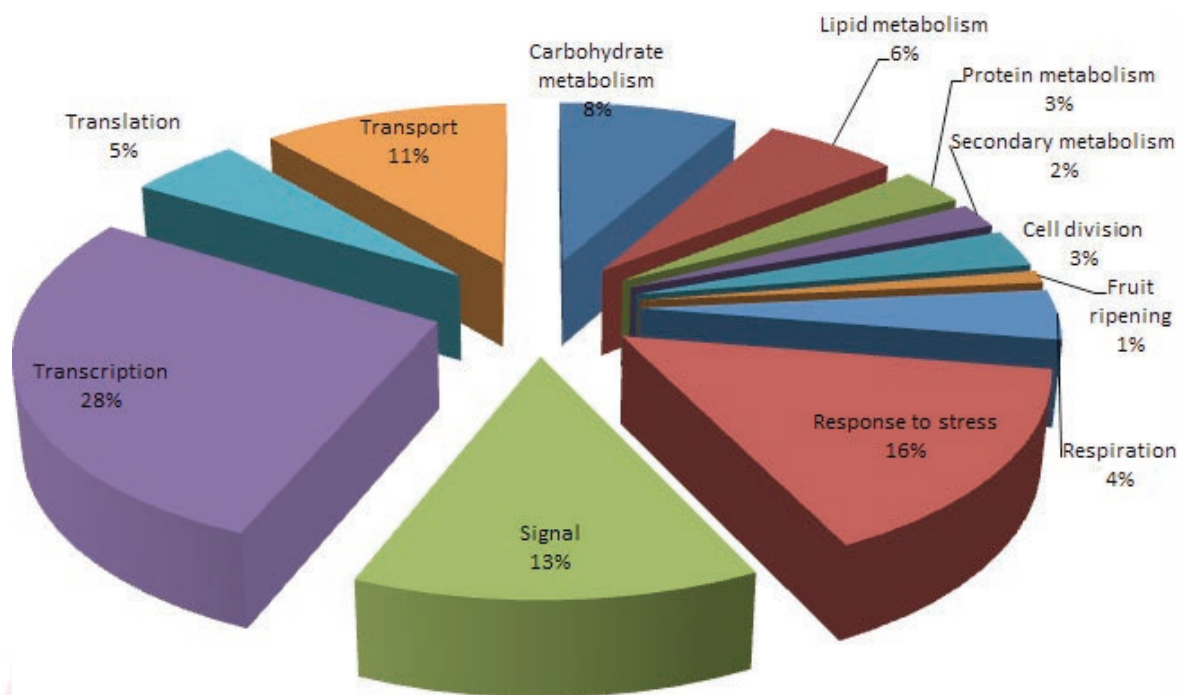
The MS/MS data of the peptides after analysis by DeCyderMS software showed differentially high expression among all eight developmental stages of Nam-Dokmai mango. They were exported and further identified by Mascot software using protein and DNA databases available in the NCBI (Johansson et al., 2006; Thorsell et al., 2007). There were 98 differentially expressed identified proteins as shown in Figure 2.

Figure 2. Showing details of 98 identified proteins that differentially express along developmental stages; different color represent different amount level of protein, green = plenty level, black = medium level, red = less level



There were several differentially expressed proteins identified in this study, which were related to carbohydrate metabolism, lipid metabolism, protein metabolism, secondary metabolism, cell division, fruit ripening, respiration, signal, transcription, translation and transport. Results are summarized in Figure 3.

Figure 3. Schematic diagrams showing functional classification percentages of 98 identified proteins.



There were 11 proteins that showed a similar trend in expression to sugar production as shown in table 4, i.e., glycosyl transferase, beta-glucosidase, lysosomal pro-X carboxypeptidase, defensin-like protein 242, lectin 6, global transcription factor group, FACT complex subunit SSRP1, AINTEGUMENTA-like protein, N-acetyltransferase, LuxR family transcriptional regulator and hydind-like protein. These proteins were related to carbohydrate metabolism, protein metabolism, responded products to stress, signal, and transcription.

Table 4. Showing proteins related to Namdokmai-mango and their relative expression levels along developmental stages.

| Protein name | Accession number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| transferase, transferring | gi 255584380 | 14.01 | 13.16 | 13.98 | 14.08 | 14.93 | 16.38 | 15.70 | 17.44 |
| glycosyl groups beta-glucosidase | gi 255584818 | 17.53 | 16.62 | 16.51 | 18.35 | 19.61 | 16.57 | 19.84 | 20.83 |
| lysosomal pro-X carboxypeptidase | gi 255565027 | 14.14 | 16.76 | 15.34 | 17.40 | 16.23 | 14.61 | 15.24 | 17.97 |
| defensin-like protein 242 | gi 42572919 | 0.00 | 17.39 | 18.21 | 16.34 | 17.19 | 17.58 | 18.50 | 18.97 |
| lectin 6 | gi 158562101 | 16.06 | 14.12 | 16.63 | 18.82 | 16.85 | 15.65 | 17.80 | 19.88 |
| global transcription factor group | gi 224136059 | 0.00 | 20.68 | 21.16 | 19.44 | 22.45 | 18.95 | 22.42 | 21.60 |
| FACT complex subunit SSRP1 | gi 162462425 | 0.00 | 0.00 | 18.87 | 17.79 | 20.51 | 18.70 | 16.73 | 18.33 |
| AINTEGUMENTA-like protein | gi 46395275 | 13.68 | 15.03 | 16.57 | 16.51 | 15.17 | 14.64 | 16.97 | 18.87 |
| N-acetyltransferase | gi 226529942 | 18.30 | 17.78 | 18.73 | 18.31 | 18.43 | 17.64 | 18.28 | 22.96 |
| LuxR family transcriptional regulator | gi 302172131 | 14.11 | 14.36 | 17.19 | 15.01 | 16.71 | 16.95 | 15.59 | 18.57 |
| hydind-like protein | gi 159463534 | 16.42 | 18.22 | 17.62 | 16.58 | 18.07 | 18.39 | 18.60 | 20.39 |

DISCUSSIONS AND CONCLUSIONS

Here, proteomic approaches were selected for identified protein that related to sweetness during developmental stages of mango fruits. All fruit samples of mango were collected from an orchard and were segregated into eight stages of the development according to the time intervals or days after flowering and the morphological appearance of the fruits. This collection step was differ from the former work that fruits were collected in unripe stage and were allowed to ripen naturally at 25°C (Andrade et al., 2012). However, the sugar result in our study was similar to the previous work.

According to Table 1, sugar production in mango flesh started during stage 2 (30 DAF) and remained stable to stage 5 (75 DAF). Then sweetness gradually increased from stage 5 to stage 8, reaching a maximum at 25.97 degree Brix. The trend of soluble sugar accumulation is similar to the observations of previous works about mango (Saluuke and Wu, 1973; Andrade et al., 2012) and also in another fruit (Wanitchang et al., 2010; Hubert and Mbéguié, 2012).

After SDS-PAGE, it was found that the intensity of many protein bands in 14.4-30.0 kDa were increased or up regulated then were selected and individually cut for identified by LC-MS/MS and Mascot. The 98 differentially expressed protein during eight developmental stages of Nam-Dokmai mango flesh were identified and found to be involved in several cellular processes including carbohydrate metabolism, lipid metabolism, protein metabolism, secondary metabolism, cell division, fruit ripening, respiration, signal, transcription, translation and transport. This protein result was similar to previous proteomic study on mango using 2-DE gel and LC-MS/MS (Andrade et al., 2012). Besides, in these amounts, there were 11 identified proteins that showed a similar trend in expression to sugar production through developmental stages. They may play a major role in sugar production of Nam-Dokmai mango.

Furthermore, these results may be helpful for mango harvesting in different purposes such as readiness for consumption, dehydration, pickling, juicing, etc. Our next study will use HPLC technique to study the quantity and quality of each sugar type and hope these will be valuable for other industrial crops in Thailand and Asian countries.

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The logo for the International Association of Agricultural Economists (iafor) is centered on the page. It features the lowercase letters "iafor" in a light blue, sans-serif font. The text is enclosed within a circular graphic composed of two overlapping, thick, curved lines. The upper-left portion of the circle is a light red color, while the lower-right portion is a light blue color, matching the text. The overall effect is a stylized, circular emblem.

Curative Methods of Thai Traditional Medicine

Kanuengnit Chuienkha

Rajabhat Rajanagarindra University, Thailand

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Abstract

The purpose of this study was to examine, identify, and accumulate all existing methods of Thai traditional medicine that were available in Chachoengsao Province, Thailand. All practitioners of a traditional system of medicine developed and selected methods of treatment, which had been existed in Thailand before the advent of European medicine, still flourish. Observing, interviewing, surveying, and using both of participatory and non-participatory descriptive qualitative researches were carried out in this study. The findings of this research demonstrated that most Thai traditional medicine practitioners were men in their old age, which were more than 60 years old, who had finished primary school and all of them had the knowledge or reading materials that were passed on and developed from generation to generation. Their beliefs concerning the causes of illness were different and we divided them into four groups, i.e., supernatural power, power of nature, power of the universe, and *kimijati* (Thai traditional medicine word). The examination procedures of Thai traditional medicine were done in a consequent manner, i.e., check patient's history with chief complaints, physical examinations, diagnosis, and astrological examination. The patterns of curative application or treatment were different depending on their beliefs regarding the cause of illness.

Keywords: Thai traditional medicine, Chachoengsao, Thailand,

Introduction

Thailand is a country that had about 90 % of the tropical ecosystems, which include humid tropical forest, coastal and mountain eco-regions. There is a significant diversity of flora and fauna. The country has about 15,000 species of plants that live in more than 10 different types of forest habitats ranging from tropical evergreen forest to mangrove (Thailand's world, 2012). This rich biological diversity is associated with the diversity of the ethnic groups in which each contributes a unique ethno-pharmacopeia and to a national therapeutic patrimony, which is the best in Asia.

Thailand has own system of traditional medicine, which is known as "Thai Traditional Medicine (TTM)". TTM has been known as one of the most valuable heritages handed down from Thai ancestors. TTM is still widely used in taking care of health in daily life especially among the rural Thais in spite of increasing popularity of Western modern medicine. Thais believe and Buddhism has largely influenced cultures, and they believe that illnesses are resulted from the imbalance of body. The treatment or healing of illness should focus in restoring the balance of body including mind and spirit.

TTM has been originated during the Sukothai period (A.D.695-834) and developed in parallel with the country as a means of national health care. Historical evidence has been shown that people start to use herbal medicine for health promotion and the treatment of various symptoms and diseases. A stone inscription from King Chaivoraman of the Khmer Kingdom indicated that 102 hospitals called arogaya sala were built to serve people throughout that Khmer Kingdom, as well as those found in the northeastern Thailand (Chokevivat and Chuthaputti, 2005).

The doctors that served the King during the reign of King Narai the Great (1656-1688), collaborated to compile a textbook of King Narai's medicines or Tamra Phra Osod Phra Narai, which was the first official textbook of Thai drug recipes. The revival of TTM was come in 1782. There were collected knowledge of TTM that was partly lost or destroyed during the war and inscribed on marble tablets and placed on the wall of two temples, namely Wat Po and Wat Raja Oros. The marble tablet inscriptions also included the principle of TTM and stretch exercise called ruesi dud ton with explanations of the symptoms or disease each massage spot or exercise posture could heal.

The modern medicine began to spread from the Western world to the East in the early 20th century resulting in a decline of the practice of traditional medicine in Thailand. Modern medicine eventually started to replace TTM and became Thailand's mainstream health-care system while TTM was neglected for over 60 years ago until the revival of TTM, which began in the late 1970s. The main reasons why the Thai government reconsidered the value of traditional medicine and decided to revive TTM and integrate it into the national health system could be summarized into six aspects, i.e., WHO policy on indigenous medicine and primary health care, the high cost of modern medicine and loss of self-reliance in health care, awareness of the limitations of modern medicine, problems with the quality of the TTM health-care system, the potential of herbal products and the practice of TTM for the country's economy, and the success of China and India concerning the integration of traditional medicine knowledge with modern medicine in their national health system (Chokevivat and Chuthaputti, 2005).

The development of TTM as a part of the national health care policy had been done simultaneously with drafting the law for the protection of TTM. TTM was first entered the

national health care system through the 4th National Health Development Plan(1977 to 1981), and it had been continuously integrated into the service system from the 5th to 9th National Health Development Plan(1982 to 2006). In this connection, the law for the protection of TTM namely the Protection and Promotion of TTM Intelligence Act B.E. 2542(1999) was also acted in 1999 and effective in 2000, which was under the supervision of the Ministry of Public Health (Thailand Law Forum, 2011).

TTM has been abandoned for more than a half century, so there are a few of folk healers that are present in each city. In Chachoengsao, there are 208 folk healers that lived in 11 districts and do not have any information about them. The transfer of knowledge that had been passed on orally from generation to generation is reducing in parallel with time. Therefore, The purpose of this study was aimed to examine, identify, and accumulate all information concerned existing methods of Thai traditional medicine that were available in Chachoengsao Province, Thailand.

Materials and Methods

Study design

A cross-sectional study was chosen as the best method to find out the curative methods of Thai Traditional Medicine in Chachoengsao Province, Thailand. Observing, interviewing, surveying, and using both of participatory and non-participatory descriptive qualitative researches were carried out throughout in this study.

Participants

The samples consisted of 208 folk healers who were registered in Chachoengsao Provincial Public Health office between October 2011 to October 2012 were used for collecting general data, while 20 folk healers were selected by using several criteria, i.e., loved to do, had the ethical, has been working as folk healer for more than five years and was well known in the community. Participants were selected by purposive sampling for semi-structured in-depth interviews and observations.

Data collection

This study used closed end questionnaire, which was developed from the questionnaire of Public Health Ministry for collecting general data of the participants. In order to collect data in a phenomenological research, the researcher conducted a face-to-face interview by using a tape recorder and in some cases, a protocol form. The researcher led the semi-structured questions, comprised of statement that encouraged the participants to recall and talk about an instance of incarceration that stood out in their mind. Then, one-on-one semi-structured questions with tape-recorded interviews were conducted on the 20 folk healers. Interviews began with open-ended questions about background, believes of illness, knowledge's used to treatments, methods of diagnosis and treatments. Participants were asked "What were the reasons that brought you to folk healers?" "Who and how did you learn about Thai Traditional Medicine?" "What was the believes of illness?" "How did you diagnosis your patients?" "What treatments that used for curing them?" The observations were used for recorded methods that used for curing.

Ethical consideration

Ethical approval for this research was obtained from the Research and Development Institute Ethics Committee, Rajabhat Rajanagarindra University. All participants were provided with information about the purposes of the research and the research process. They were given the opportunity to ask questions about the research, and were aware that they could withdraw from this research at anytime without negative consequences. The participants consented the researcher to use a tape recorder. There were no existing power relations between the researcher and the participants that could perceive coercion.

Data Analysis

Collected data were coded and entered into SPSS 15.0. Responses to the questionnaire were analyzed descriptively by sex, age, level of education, place of house, sources of drugs and type of diseases and had interpreted data in percent. For the qualitative questions, data were analyzed by content analysis.

Results and Discussion

Demographic characteristics

This study was found that 71.6 % of the 208 folk healer participants were men and distributed in many place of Chachoengsao such as 16.3 % in Bang Nam Prio district, 14.9% in Sanam Chai Khet district, 13.9% in Plang Yal district, and 13.4% in Tha Takiap district. Every place that mentioned above was far from the center of province. The populations were poor, low incomes, and low education. Their believes of illness did not like the modern medicine, so they liked to use TTM when they had a disease. Folk healers' age ranged from 21-90 years old and most of them were over 60 years old (61.05%). The majorities of participants had received primary level education. Folk healers were classified into six groups, i.e., the magic healers, the herbalists, the mor nammon (holy water healers), the ritual healers, the massage healers, and the midwives. It was found that among the folk healers, 36.3 % of them were herbalists, 25.6 % were mor nammon, 14.6 % were massage healers, 11.0 % were ritual healers, 10.4 % were magic healers, and 2.10 % were midwives. The characteristics of the study participants are summarized in Table 1-4

Table 1. Numbers and percentages of folk healers segregated by sex and place.

| District Sex | Bang Nam Prio | Ban Pho | Phanom Sarakhm | Tha ta kiap | Sanam chai khet | Bang Pakong | Bang Kla | Maueng | Rat cha sarn | Plang Yal | Total |
|-----------------|---------------------|-------------|-------------------|----------------|-----------------------|----------------|-------------|--------------|-----------------|--------------|--------------|
| Male | 21 (14.1) | 14 (9.4) | 10 (13.0) | 25 (25.5) | 24 (16.1) | 14 (9.4) | 8 (5.4) | 2 (1.3) | 8 (5.4) | 23 (15.5) | 149 (100) |
| Female | 13 (22.0) | 5 (8.5) | 3 (5.1) | 3 (5.1) | 7 (11.9) | 10 (16.9) | 0 (0) | 10 (16.9) | 2 (3.4) | 6 (10.2) | 59 (100) |
| Total | 34 (16.4) | 19 (9.1) | 13 (6.3) | 28 (13.5) | 31 (14.9) | 24 (11.5) | 8 (3.8) | 12 (5.8) | 10 (4.8) | 29 (13.9) | 208 (100) |

Table 2. Numbers and percentages of folk healers segregated by age and place.

| District Age | Bang Nam Prio | Ban Pho | Phanom Sarakh m | Tha ta kiap | Sanam chai khet | Bang Pakong | Bang Kla | Mauen g | Rat cha sarn | Plang Yal | Total |
|-----------------|---------------------|-------------|-----------------------|----------------|-----------------------|----------------|-------------|-------------|-----------------|--------------|--------------|
| 21-30 | 1 (2.9) | 1 (5.3) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (1.0) |
| 31-40 | 2 (5.9) | 0 (0.0) | 0 (0.0) | 4 (14.3) | 3 (9.7) | 2 (8.3) | 0 (0.0) | 5 (41.6) | 1 (10.0) | 0 (0.0) | 17 (8.2) |
| 41-50 | 1 (2.9) | 1 (5.3) | 0 (0.0) | 4 (14.3) | 8 (25.8) | 3 (12.5) | 1 (12.5) | 0 (0.0) | 2 (20.0) | 3 (10.4) | 23 (11.0) |
| 51-60 | 6 (17.7) | 2 (10.5) | 2 (15.4) | 9 (32.1) | 5 (16.1) | 7 (29.2) | 2 (25.0) | 2 (16.7) | 0 (0.0) | 5 (17.2) | 40 (19.2) |
| 61-70 | 9 (26.5) | 5 (26.3) | 5 (38.5) | 9 (32.1) | 10 (32.2) | 5 (20.8) | 3 (37.5) | 2 (16.7) | 4 (40.0) | 11 (37.9) | 63 (30.3) |
| 71-80 | 14 (41.2) | 9 (47.3) | 5 (38.5) | 2 (7.2) | 3 (9.7) | 4 (16.7) | 1 (12.5) | 3 (25.0) | 3 (30.0) | 10 (34.5) | 54 (26.0) |
| 81-90 | 1 (2.9) | 1 (5.3) | 1 (7.6) | 0 (0.0) | 2 (6.5) | 3 (12.5) | 1 (12.5) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 9 (4.3) |
| Total | 34 (100) | 19 (100) | 13 (100) | 28 (100) | 31 (100) | 24 (100) | 8 (100) | 12 (100) | 10 (100) | 29 (100) | 208 (100) |

Table 3. Numbers and Percentages of folk healers segregated by education and place.

| District Education | Bang Nam Prio | Ban Pho | Phanom Sarakhom | Tha ta kiap | Sanam chai khet | Bang Pakong | Bang Kla | Maueng | Rat cha sam | Plang Yal | Total |
|-----------------------------------|---------------------|--------------|--------------------|----------------|-----------------------|----------------|-------------|--------------|----------------|--------------|---------------|
| Non- education | 9 (26.5) | 0 (0.0) | 0 (0.0) | 1 (3.6) | 6 (19.4) | 3 (12.5) | 1 (12.5) | 1 (8.3) | 0 (0.0) | 0 (0.0) | 21 (10.1) |
| Primary level | 24 (70.6) | 18 (94.7) | 13 (100) | 24 (85.7) | 20 (64.5) | 21 (87.5) | 6 (75.0) | 10 (83.4) | 9 (90.0) | 26 (90.0) | 171 (82.2) |
| Junior high school | 0 (0.0) | 1 (5.3) | 0 (0.0) | 1 (3.6) | 2 (6.5) | 0 (0.0) | 1 (12.5) | 0 (0.0) | 1 (10.0) | 2 (10.0) | 8 (3.9) |
| Senior high school | 1 (2.9) | 0 (0.0) | 0 (0.0) | 2 (7.1) | 3 (9.6) | 0 (0.0) | 0 (0.0) | 1 (0.0) | 0 (0.0) | 0 (0.0) | 7 (3.3) |
| High vocational certificate | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| Graduate | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.0) | 1 (0.5) |
| Total | 34 (100) | 19 (100) | 13 (100) | 28 (100) | 31 (100) | 24 (100) | 8 (100) | 12 (100) | 10 (100) | 29 (100) | 208 (100) |

Table 4. Numbers and percentages of folk healers segregated by type of folk healer and place.

| District type | Bang Nam Prio | Ban Pho | Phanom Sarakhm | Tha ta kiap | Sanam chai khet | Bang Pakong | Bang Kla | Maueng | Rat cha sarn | Plang Yal | Total |
|-----------------------|---------------------|--------------|-------------------|----------------|-----------------------|----------------|-------------|-------------|-----------------|--------------|---------------|
| Magic healer | 4 (9.3) | 4 (11.4) | 3 (14.3) | 4 (8.3) | 5 (8.5) | 4 (11.8) | 1 (6.6) | 1 (8.3) | 1 (8.3) | 8 (16.3) | 34 (10.4) |
| Herbalist | 10 (23.2) | 10 (28.6) | 9 (42.9) | 24 (50.0) | 25 (42.4) | 8 (23.5) | 7 (46.7) | 3 (25.0) | 4 (33.3) | 19 (38.8) | 119 (36.3) |
| <i>Mor nammon</i> | 20 (46.5) | 9 (25.7) | 5 (23.8) | 7 (14.6) | 15 (25.4) | 9 (26.5) | 4 (26.7) | 1 (8.3) | 4 (33.3) | 10 (20.4) | 84 (25.6) |
| Ritual healer | 2 (4.7) | 7 (20.0) | 1 (4.7) | 7 (14.6) | 5 (8.5) | 5 (14.7) | 0 (0.0) | 1 (8.3) | 1 (8.3) | 7 (14.3) | 36 (11.0) |
| Massage | 5 (11.6) | 5 (14.3) | 3 (14.3) | 4 (8.3) | 8 (13.5) | 8 (23.5) | 3 (20.0) | 5 (41.7) | 2 (16.7) | 4 (8.2) | 48 (14.6) |
| Midfife | 2 (4.7) | 0 (0.0) | 0 (0.0) | 2 (4.2) | 1 (1.7) | 0 (0.0) | 0 (0.0) | 1 (8.3) | 0 (0.0) | 1 (2.0) | 7 (2.10) |
| Total | 43 (100) | 35 (100) | 21 (100) | 48 (100) | 59 (100) | 34 (100) | 15 (100) | 12 (100) | 12 (100) | 49 (100) | 328 (100) |

NOTE: one folk healer might be two or more type of folk healer.

Knowledge's of TTM were transferred from generation to generation. This study was found that 37.4% of folk healers received knowledge from their ancestor, 21.5 % from teacher, 2.6 % from school, 15.4 % from text, 19.9 % from experience, and 3.2% from others. Table 5 showed numbers and percentages of this characteristic.

Table 5. Numbers and Percentages of folk healers segregated by sources of knowledge and place.

| District type | Bang Nam Prio | Ban Pho | Phanom Sarakhom | Tha ta kiap | Sanam chai khet | Bang Pakong | Bang Kla | Maueng | Rat cha sarn | Plang Yal | Total |
|------------------|---------------------|--------------|--------------------|----------------|-----------------------|----------------|-------------|--------------|--------------------|--------------|---------------|
| Ancestor | 21 (46.7) | 14 (48.3) | 9 (30.0) | 16 (24.2) | 23 (31.5) | 19 (55.9) | 5 (31.2) | 10 (52.6) | 7 (46.7) | 17 (34.0) | 141 (37.4) |
| Teacher | 8 (17.8) | 7 (24.1) | 6 (20.0) | 18 (27.3) | 13 (17.8) | 7 (20.6) | 5 (31.2) | 1 (5.3) | 2 (13.3) | 14 (28.0) | 81 (21.5) |
| School | 2 (4.4) | 0 (0.0) | 1 (3.3) | 1 (1.5) | 3 (4.1) | 1 (2.9) | 1 (6.3) | 0 (0.0) | 0 (0.0) | 1 (2.0) | 10 (2.6) |
| Text | 5 (11.1) | 2 (6.9) | 6 (20.0) | 12 (18.2) | 14 (19.2) | 4 (11.8) | 3 (18.8) | 3 (15.8) | 3 (20.0) | 6 (12.0) | 58 (15.4) |
| Experince | 9 (20.0) | 4 (13.8) | 7 (23.4) | 17 (25.8) | 17 (23.3) | 3 (8.8) | 2 (12.5) | 4 (21.0) | 2 (13.3) | 10 (20.0) | 75 (19.9) |
| Others | 0 (0.0) | 2 (6.9) | 1 (3.3) | 2 (3.0) | 3 (4.1) | 0 (0.0) | 0 (0.0) | 1 (5.3) | 1 (6.7) | 2 (4.0) | 12 (3.20) |
| Total | 45 (100) | 29 (100) | 30 (100) | 66 (100) | 73 (100) | 34 (100) | 16 (100) | 19 (100) | 15 (100) | 50 (100) | 377 (100) |

NOTE: One folk healer might be two or more types of sources of knowledge.

Methods of Diagnosis and Treatment

It was found that the treatment procedures were mostly mixed, usually involving “Blowing methods” combined with other types of treatments. However, the type of folk healers varied the major method of disease diagnosis and treatment. It was found that the methods for diagnosis and treatment of folk healers were as followings:

Magic healers’ diagnosis

This type of folk healers believed the cause of illness was supernatural power. The examination and diagnostic procedures were patients’ history and chief complaint, usual behaviors or habits, and physical examinations. Some folk healers asked person who was supernatural power to help them.



Figure 1. Picture shows “Father Doctor Shivago Komarpahj” contemporary of the Buddha whom all Thai folk healers respected.

The case study was Mor Prateung, he used four elements for curative, i.e., earth, water, wind, and fire. Earth was a charcoal, while water was holy water, where wind was blowing and fire was hot steel knife. Figure 2 shows four elements.



Earth and Fire



water



Wind

Figure 2. Pictures showing four elements that Mor Prateung used for curing patients.

Herbalist

The herbalists believed that illness was due to an imbalance in the four basic elements of the body, the effect of external elements, the environment that could affect human health, the seasons (heat and cold) during different seasons clearly affected human health and inappropriate behaviors that can be the causes of illness. They used herbal medicine to cure patients. The knowledge used to cure was transmitted through face-to-face teaching in a form of apprenticeship. They learned about plants to be used. This kind of apprenticeship style teaching was principally oral. The teacher showed where and how to find the plants, and what they look like, how they smell and taste. The oral teaching was mixed with the textual knowledge of medical manuscripts. The written texts contained herbal formulae but the core information, which was important to practice was orally based and taught by the teacher. Figure 2 showed some herbal medicines that Mor Gim used to cure patients.

According to the diagnosis procedure, Mor Gim asked patient's history, chief complaints and unusual behaviors or habits. He used physical examination mixed with patient's history and then diagnosis. After that, Mor Gim used the medical plants from his house or that was found in the village or community forest, which he dried it in the sun and stored it in the dry place. He liked to use these handmade plant medicines more than plant medicines from store. He said that he did not confide the plant medicines from store.



Figure 3. Pictures showing some types of medical plants from Mor Gim's house.

***Mor nammon* (Holy water healers) and *Mor Paw* (Blowing traditional healers)**

The case study was Mor Thavorn Vorarat. His believes of illness were human illness could caused by power of the universe, i.e., positive and negative influences from the sun, the moon and the stars on human health. He received the knowledge from the respective and wellknown monk. He used the holy water, the holy oil, blowing and herb medicines to cure the patients. Figure 4 shows the holy oil and the procedures that Mor Thavorn used to cure the patients.



Figure 4. Holy oil from animal parts and the curability by blowing which Mor Thavorn used to cure patients.

Ritual healers

The case study was Mor Somnuk Dethpipat. His believed of illness were human illness that could cause by power of the universe, i.e., positive and negative influences from the sun, the moon and the stars on human health. So, the examination and diagnostic of ritual healers were astrological examination and the others. Some ritual healers might perform astrological examination of patients to determine if their illness were the results of stars, a supernatural power or bad karma. If so, a form of rites was usually performed to psychologically boost the patient's morale.

He learned the methods to examine astrological from his respective and well known monk. He used the birthday, month and year of patient to calculate and using seven or twelve figures to predict patient's life. Figure 5 shows how to calculate. After that, He would recommend the patient to have the ritual if the astrological was bad. The types of rituals used in the healing process were, i.e., lai pe (exorcise), su kwan (welcoming back the spiritual part of the body), sador kraw (performing a ceremony to change one's bad fortune). Figure 5 shows the shelf that Mor Somnuk had been respected.

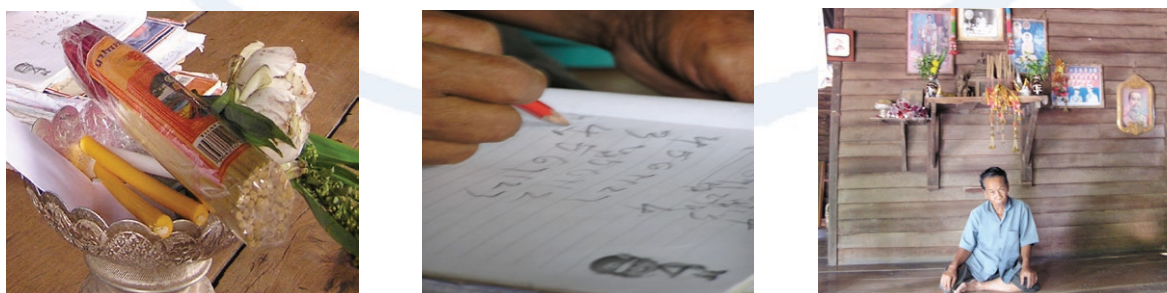


Figure 5. Pictures showing the things giving for teachers, calculating method, and Shelf of the holy things.

Massage healers

Thai traditional massage was a branch of TTM and a form of manual therapy that could be used for health promotion or relaxation and could also effectively cure or relieved several symptoms and disease, e.g., myofascial pain syndrome, frozen shoulder, and tension headache.

The case study was Mor Moltin Kamponson. She was 37 years old. She learned massage from her mother in law who was a massage healer. Her belief of illness was fat, lacked of exercise and did not had massage for relaxation. She did not like to learn massage but her grandmother (who was a midwife) kept asking her to accompany her when she went to work until she was married and her mother in law had taught her again and kept asking her to accompany her when went to massage. The method of teaching was demonstrated how to position the patient, how the masseur should be positioned, how to examine the Sen (line), and how to apply pressure to particle points. The oral teaching process was based on practical situational learning. In addition to the practical skills of massage, she was learned about herbal medicine preparation called Luk Pra Kub and included all aspects of ritual, such as the incantations, khaa thaa that used with massage.

The method of diagnosis was done as followings; she asked the patient's history and chief complaint, then she used her hand to catch Sen in the body. The abnormal Sen was hard and did not rough. Using her thumb did her treatment and four fingers to pull the abdominal Sen. Materials that used with massage were oil and Luk pra kub. The formula of oil and Luk Pra Kub was passed to from generation to generation, the components of Luk Pra Kub were a blend of medical herbs, and tied in a cotton cloth to make a round shaped ball with a handle on top (Figure 6)



Figure 6. Picture showing *Luk Pra Kub*.

The components of oil were coconut oil, plai and garlic (*Allium sativum* Linn.) and before its application to the affected area of the body, *Luk Pra Kub* must be steamed for about 10-15 minutes. The heat helped to increase the regional blood flow and the release of volatile oils from the herbs helped to exert anti-inflammatory action on the affected muscles. The hot *Luk Pra Kub* compression and oil were used in combination with massage. The reason to use oil with *Luk Pra Kub* was to smooth the skin while performing massage.

In the case of patient had a large body, she must used her elbow and her feet to help the massage. Figure 7 shows the methods that Mor Moltin used to massage patient.



Figure 7 Showed some positions of massage by Mor Moltin and her partner.

Midwives

Midwife was a part of TTM, which combined a mix of natural practices with believes, ritual, and tradition.

In the case study, Mor Eed Sanggaew who was 72 years old and was married to Mr. Aaj Sanggaew who immigrated into Bang Nam Prio district where it was very difficult, if she would like to go to Chachoengsao Hospital. So, at the time when she had the first child, she delivered her newborn child by herself. She had eight children, she delivered all of them and she was a mid wife for all of her daughter also, that was very pride of her. She had a midwifery professional that no longer help to deliver baby but to provide pre-and post- natal care and treatment for some minor illness.

Mor Eed was only one daughter of her parents. Her mother was a midwife. So, when she went to deliver a newborn, she had to bring Mor Eed with her. She learned how to deliver baby, how to cut the umbilical cord by using a small-sharp bamboo blade, how to take care mother and her baby.

Mor Eed had diagnosis the time to deliver the newborn child by observing mother's symptoms and had internal examination by using her finger inserted into mother's vagina for touching baby's head and umbilical sac.

When Mor Eed should be going to work, she had to do ritualize by asking her bone's parents on shef to help her for successiveness work. Also, she had asked the permission of The holy civils of the patient. The procedures to deliver a newborn child was following : 1) Inserted her finger into mother's vagina 2) If umbilical sac didn't break, used her nail brak it 3) Waited until seeing baby's head over then used her hands supported baby's head and helped mother by pushing softly manner on mother's abdominal 4) Waited until placenta was off 5) used a small-sharp bamboo cut the umbilical cord 6) Bathed a newborn baby 7) Had ritual

and tradition for a newborn baby and 8) Provide Yu Fai (heat therapy) for mother. During this month, mother was received herbal therapy which included massage with an herbal compress known in Thai as Luk Pra Kub abdominal salted herbal massage, heating the vagina and around area by sitting over a herbal hot charcoal seat, and herbal souna.

Conclusion

TTM occupies a very important basic health care of Thai peoples and rural area in particular. It consisted of Thai culture and way of life, and based on the principles of Buddhism. TTM used various forms of practices to complement each other, e.g., medicine, massage, Buddhist rites, as well as other rituals based on the believes in supernatural power or power of the universe. TTM was a holistic and natural approach of health care that was a holistic and natural approach of health care that was derived from the wisdom of Thai ancestors.

It was found from this study that folk healers had knowledge from the teacher or the old generation. In addition, they also learned by memorizing the inscriptions on the palm leaf medical textbooks. His experience on the treatment of the patients was gained by self-training, not by formal education from medical school. The four factors that influence the existence of folk healers were the life style of people, the acceptance by the community, the satisfaction and the cost of treatment. The majority of life style of people was farmer who worked in agriculture fields where their way of lives depended on the nature. They believed in supernatural power. So, when they need medical doctors, they still preferred traditional doctors because traditional doctors understand them. The acceptance by the community was one factor that related to their abilities in curative patients. The satisfaction of the style of traditional medical services was one of another factor that related to the characteristics of traditional medicine doctors, and the cost of treatment should not high as compare to the standard of living of people in that area.

It was found also that there were many folk healers in six types of folk healers in Chachoengsao. Most of them were men in their old age, more than 60 years old. So, there was a lack of person who handed down the most valuable heritages except Thai massage and herbal medicine, which the future prospects were rather positive. In order to ensure safe and healthy for medical herbs and massage, the Chachoengsao Provincial Public Health Office was to be setting program for surveillance medical herbs. The methods to solve a problem lacking of person who handed down, schools had to set a community curriculum by asking the folk healers in a community to help both, setting a curriculum and teaching.

If the Thailand society did not accept TTM, then research should be focused on the effective of TTM.

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*Thai Phuan Traditions in Globalization Era:
A Case Study of a Village in Chachoengsao Province*

Boonyod Sriratanasarana

Rajabhat Rajanagarindra University, Thailand

0210

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Abstract

The research objectives were to investigate the condition of Thai Phuan traditions in the current climate and to find out ways to revive and preserve their traditions. Qualitative methods for data collection and analysis were employed. The key informants were chosen through specific sampling. Data collection was used through specific sampling, participatory and non participatory observations, in-depth-interviews and focus group discussions. We divided these traditions into two main tracts: the traditional phenomena in their present situation and the means of reviving and preserving others. It was found that traditional rituals at Na Lao Bok Village, Chachoengsao province, could be classified into three categories, i.e., the preserved, the abandoned and the adapted ones. The preserved traditions that had been passed down were as follows: the Songkran Festival (water splashing), the Annual Temple Fair of *Luang Por Ta Yor* (the late abbot's statue), the House-guardian Ancestor Spirit Offering Ceremony, the Bung Alms giving Ceremony, New Year *Khanom Tien* Festival, the Buddha's Great Previous Life Sermon, the Ten Thousand Rice Lamp Ceremony and the *Kao Lam* Ceremony. The abandoned traditions consist of the *Mae Posob* (Goddess of Rice) Worship Ceremony and the *Kwan* welcoming Ceremony and the *Malai Muen Malai Saen* Sermon. Finally, the adapted traditions include Buddhist ordinations, wedding ceremonies and funeral ceremonies. In addition, Focus group discussion revealed that many sectors of village were responsible for reviving and preserving traditions.

Key words: Thai Phuan's Tradition, globalization era, house-guardian ancestor spirit offering ceremony, Chachoengsao.

Introduction

Thailand has a long history; in the interval there were many changes in the social, political, economic and other aspects of life. People of Thailand have been constituted by migration, both in peace and forced movements during wars. Thailand has become a multi-ethnic society. Each ethnic group has their tradition and culture which reflects their identity. The variety of tradition and culture indicates a cultural progression of society. Many ethnic groups in Thailand are major groups, and some are just minor ones but their traditions and culture are so identical such as Thai Phuan.

Thai Phuan groups are scattered around Thailand, there are many Thai Phuan domiciles at Bann Mi, Lop Buri; Pak Phli, Nakhon Nayok; Si Satchanalai, Sukhothai; Bann Phue, Udon Thani and Phanom Sarakham, Chachoengsao. Thai Phuan has had long inherit unique tradition and culture, even their dialect, beliefs and traditions are similar to Thai E-Sarn and Laotian but there are many differences, for example, in dialect, Phuan pronounce 'ai' as 'er', such as 'hai' (give) is pronounced as 'her'. In tradition, Phuan partake in the Boon Kham Fha ritual which has been traditionally performed in the third lunar month. In the ritual, Phuan bring unhusked rice to a temple and chant, and then they bring the rice to keep in their silo to bring good luck. The nationally celebrated Songkran New Years festival is slightly different too; in the early morning of the day, Phuan take part in a bathing ritual to clean their bodies and bring them a good luck.

Most of Phuan's traditions and rituals have been inherited through the generations. Most are rituals, which relate to Buddhism, the remaining is performed for their ancestors, spirits and sacred things. Details in the rituals differ by area but their main purposes are all the same – as ideas to hold on to, to be united and teach their descendants to be grateful and respect their ancestors (Duke, P. and Sarikaphuti, N. 1986, p.25). At present, most of their rituals have blended into Thai traditions and culture, some of their customs have been overwhelmed by modernization and changing society. The result is that many Phuan have disappeared and the remainings are some unique their beliefs.

Chachoengsao is a province that has many Thai Phuan settlements. Basic information yields that many Phuan traditions and culture have disappeared because of several reasons, i.e., their elders passed away, inappropriate processes to pass the tradition to descendant, and Phuan's youth have been devoured by modernization and do not appreciate the value of their tradition and culture (Suksamran, S., et.al. 1996, p.115). This study was conducted to gather information about present situation of Thai Phuan's tradition and culture, and factors that effect on their way of life. The information will be used to find ways to preserve the tradition and culture.

The objective of this study was aimed at gathering information about present situation of Thai Phuan's tradition and culture and to draw a guideline to revive and preserve the tradition and culture.

Methods of the study

This study was qualitative research, which used social science research methods for data collection and analysis.

1. Site Selection for study. The researcher chose Ban Na Lao Bok, Nong Yao sub-district, Phanom Sarakam District, Chachoengsao Province as the area of the study by setting up these criteria; a) it should be a Thai Phuan village settled for more than 100 years, b) the villagers comprised more than 80% of Thai Phuan, c) Thai Phuan rituals or traditions were still practicing in that particular village, and d) the villagers were enthusiastic and cooperative in giving information relating to the research.

2. The Preparation for the field work. The researcher went to explore and collect the basic information of that particular village from time to time and the villagers were enthusiastic, welcoming and cooperative about data collection.

3) Selecting information sources. In choosing the key informants, the researcher used purposive samplings by the following criteria, i.e., a) *the amount of key informants*; the researcher chose 10 villagers to be key informants of the research, of which those would be able to give enough information and the collected data from those would answer the research objectives. If the collected data did not cover the requirements the researcher might choose key informants greater than that amount to fulfill the research objectives, and b) *method for choosing key informants*; villagers who would be the key informants must have been settled down in that particular village continuously more than 20 years, those must be directly concerned or knowledgeable about the subject matter of the study (Thai Phuan traditions), and those were welcomed to support and give the information.

4) Collecting data; the researcher collected data for the research as much as possible through participatory and non-participatory observations, in-depth-interviews, and focus group discussion. Apart from this, the collection of relating documents was also taken.

5) Analyzing the data. The researcher analyzed the data through the following steps while field work was being done during data collection; a) took the data from tape recordings and confirmed that data, while words or sentences relating to subject matters of the research were reviewed; b) took the data from the first step for grouping in different contents, then checked its reliability from experts and re-checked again; and c) the researcher used coding and showed the data according to the research objectives, then summarized the contents or data from the interviews in each day, wrote the research contents and setting up suitable quotations to support subject matters of the research.

6) Checking the data; the researcher used triangulation for checking the reliabilities of the data. Apart from this, the researcher used content analysis from the data derived from in-depth-interviews.

7) Period of collecting data; the researcher collected the data during June 2009 to May 2011. In this research, whenever the villagers organized rituals or traditions in their village the researcher always took part in the activity.

Results and Discussion

Initially, Ban Na Loa Bok was a rural society, where most people were farmers. At the present time, the community has more infrastructures and changed to become a suburban area. So, the importance of agriculture decreased, people are varied in occupation and younger generations tended to go to work for the industrial sector in urban areas. Many people lease their land for rent. Most leasees are capitalist and they do agriculture with new

technologies, which replace original ones, and the cost increased. Relationships between community members have changed too, from the community that members support each other to working for a wage.

Their tradition has a lot of change. In the past, every member gave precedent to tradition but, because of change, many members, especially youth, had move to work in urban areas. The tradition that used to be the gathering of community member has become less important.

Technology has connected every community around the world together. It makes enormous change in every community, which has an effect on their tradition and culture. The change informs each individual and becomes a form of cultural navigation and, at last, affects social norms. The phenomenon can drive society to anomie, which causes many problems. In recent years, many foreign cultures have flooded into Thailand. Thais have received those cultures from media and the cyber world without carefulness. The effect has fallen on youth who are in the learning age, but they lack immunity and maturity. The problem, with other social factors, leads them to replace original culture with sub-cultures and, finally, develop to severe social problems. At present, drug abuse plagues some of Phuan society.

The phenomenon of globalization has pushed communities and threatens to submerge their identity or self-awareness. Moreover, it triggers change in relationships between relatives and friends from primary relationship to secondary relationship, which is lesser than previous years. The members of a community should be aware that new things do not mean better things and realized the value of their tradition and culture as their root and identity. At present, young Phuan have lost their identity; the clothes that they wear, the language to speak out in their traditional language.

The research finding was separated into two issues.

1. Present situation of Thai Phuan's tradition and culture. It was found that Thai Phuan traditions and culture of Ban Na Lua Bok, Nong Yoa, Phanom Sarakam, Chachoengsao province had changed according to globalization as shown in table 1.

| Some traditions had been practiced and still remained through | Some traditions remained but had changed according to changed society | Some traditions were already lost |
|---|---|---|
| <ol style="list-style-type: none"> 1. Songkran Day and gold Luan Ta Yor. 2. Liang Phee Poo Ta Ban ritual (feeding ancestor spirits). 3. Tham Boon Klang Baan (household merit making). 4. Sart Phuan or Tak Bat Bung (Phuan's new year). 5. Thum Boon Hor Khao or Sart Khanom Thien (rice dessert making). 6. Thed Mahachati (listening to the sermon about Buddha's lives). 7. Hae Khao Phun Kon (Procession of rice offering to Buddha). 8. Khuen Khao Phao Khao Larm (Rice burning mountain festival). | <ol style="list-style-type: none"> 1. Buddhism Ordination. 2. Marriage. 3. Cremation Ceremony. | <ol style="list-style-type: none"> 1. The Wai Phra Mae Pho Sob (pay respect to goddess of rice). 2. Suu Kwan Khao ritual. 3. Hae Nang Maew ritual. 4. Rub Kwan Dek (blessing for new borns). 5. Thet Malai Muen Malai San. |

The following examples of ritual participation and observation are shown in figure 1.



Figure 1. Showing the activities of feeding house-guardian ancestor spirits.

2. Guide line to revive Thai Phuan's tradition and culture. Guidelines derived from focus group discussion were comprised of 7 sectors. These were that the **Household** should focus on making their members to realize the importance of Phuan's tradition and culture and their way of life, which had been inherited for a long time. **Society** should focus on cooperation to revive and inherit Phuan's tradition and culture. **Monasteries** should be the center of information. Also, monks should participate in embedding ideas about Phuan's tradition to members of society and support all activities. **Local Leaders** should give precedent to Phuan's tradition and culture and support their locality to correctly inherit and perform the rituals. In addition, they should publicize and promote their practices for tourism business. **Local Schools** should add content about Phuan's tradition and culture to their curriculum to make students realize the importance of their ancestor's tradition and culture. **Local Elders** should be promoted as 'gurus' to pass their knowledge to descendants, and the **Local Government** should act as a focal point to support and promote the tradition revival.

After all, progress and local prestige are depended on people. The people must preserve their traditions and culture because they were the way to unify their society to be strong and unique. The 7 sectors in revival and preservation the tradition and culture which mentioned before could be summarized as shown in figure 2.

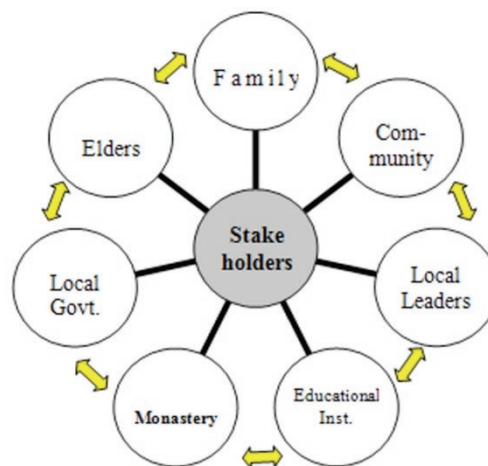


Figure 2: Showing participants in revival and preservation Thai Phuan's tradition and culture.

Suggestion

The study yield following suggestion;

1) Thai Phuan of Ban Na Lao Bok has a way of life that blends between modern and original life style. It can be said that their way of life has changed by various factors but they can preserve some unique tradition and culture as well.

2) At the present time, their way of life is affected by globalization. So they should be prepared to preserve the tradition and culture to survive through furious change.

3) Local knowledge should be promoted. Local organization should be urged to study and preserve their local knowledge.

4) Local leaders should have a role to implant Thai Phuan's value to realize the worth of their tradition and culture. So, it can be passed to next generation.

5) Thai Phuan should get economic support, open more job opportunities, which lead to more income. If they have enough income, migration rate will reduce and change in their way of life will be lesser.

6) Government should launch a policy that promotes local culture. It is the way to preserve as well as use the culture as tourism attraction, which will be sources of community income.

7) Encourage Thai Phuan to receive information from media, which makes them able to adapt to globalization era and live happily.

8) Suggestion for further study: A SWOT analysis should be carried out to acquire information about factors that affect to the revival and preservation of Thai Phuan's tradition and culture, which lead to survival of the tradition in globalization world.

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*The Development of 4 MAT Lesson Plans on Addition, Subtraction,
Multiplication and Division Combined for Prathomsuksa 3 Students*

Nawaporn Khumwong, Charuwan Singmuang

Rajabhat Rajanagarindra University, Thailand

0222

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Abstract

The study was aimed at developing the 4 MAT lesson plans with an efficiency criterion of 80/80. Efforts were made to study the effectiveness index of 4 MAT lesson plans, students' learning achievement after learning using 4 MAT lesson plans, and students' satisfaction after learning using 4 MAT lesson plans. The participants comprised of 22 Prathomsuksa 3 (Grade 3) students from Wat Nongsue School, Chachoengsao Province, Thailand. Students had learned about addition, subtraction, multiplication, and division combined for a total of 18 hours. The instruments consisted of 4 MAT lesson plans, a mathematics achievement test, which was including of 30 items with 4 multiple choices, and a questionnaire on students' satisfaction towards 4 MAT learning activities, which was including of 15 items on a Likert scale. The data were statistically analyzed by percentage, mean, and standard deviation. The research hypotheses were tested by using *t*-test and Chi-square test. Some findings were as follows: the efficiency of 4 MAT lesson plans was 87.19/83.63, which was higher than that of the criterion 80/80. The effectiveness index of 4 MAT lesson plans was found to be 0.77. The students' learning achievement after using 4 MAT lesson plans was statistically significant, which was higher than that before using lesson plans at the level 0.05. The students' satisfactions towards the 4 MAT learning activities were at the highest level. The results indicated that 4 MAT learning activities could be used effectively in order to enhance student's mathematics achievement on several topics.

Keywords: 4 MAT lesson plans, efficiency, effectiveness index, learning achievement.

INTRODUCTION

The development of a learning society is emphasized on a knowledge center for Thailand's vision of becoming a knowledge economy equipped for the 21st Century. Thailand is striving to foster the development of learners and citizens with strong morals and ethics that are able to embrace and understand the world around them and integrate these into a strong sense of their Thai culture and identity to the benefit of their communities (Ministry of Education).

The modern Thai education system stems from the reforms set in place by the 1999 Education Act which put in place administrative structures, decentralization and put a learner centered focus at the heart of the reform process. The modern Thai education system is based around 9 years of compulsory education (enacted in 2003) with 12 years of free basic education guaranteed by the constitution.

The National Education Act B.E. 2542 (revised B.E.2545) and the Compulsory Education Act B.E.2545 state that there shall be three types of education: formal, non-formal and informal. Formal education shall specify the aims, methods, curricula duration assessment, and evaluation conditional to its completion. Non-formal education shall have flexibility in determining the aims, modalities, management procedures, duration, assessment and conditional evaluation to its completion. The contents and curricula for non-formal education shall be appropriate, respond to the requirements, and meet the needs of individual groups of learners. Informal education shall enable learners to learn by themselves according to their interests, potentialities, readiness and opportunities available from individuals, society, environment, media, or other sources of knowledge.

Formal education is divided into two levels: basic education and higher education. Basic Education in Thailand is divided into 6 years of primary schooling (Grade 1–6) from the age of 7 years old followed by 3 years at lower secondary (Grade 4–6). In 2003, compulsory education was extended to 9 years. By 2005, gross enrolment rates for basic education reached 104% for primary education (5.8 million students), 95% for lower secondary education (2.7 million students) and 64% for upper secondary education (1.7 million students divided between 1 million in general education and 700,000 in vocational education). Eight core subjects are used to form the National Curriculum. The flexibility is built into the curriculum to integrate local wisdom and culture as long as it is consistent with the learning standards in each of the subject groups. These include Thai language, mathematics, science, social studies religion and culture, health and physical education, art, career and technology, and foreign languages. At the heart of the teaching and learning inside of the national curriculum, the promotion of thinking skills, self-learning strategies and moral development is the core course. Basic Education is divided into three levels, i.e., pre-elementary level, elementary level, and secondary level. At the pre-elementary level, students are offered a two-year course in public pre-elementary schools and a three-year course in private pre-elementary education aims to nurture and prepare physical, mental, intellectual and emotional skills to students for their further movement to elementary education. Apart from pre-elementary schools and kindergartens, pre-elementary education is also provided in Child Care Centers and Child Development Centers, depending on the target groups and their local areas. At the elementary level, students undergo at least six year of elementary education as a compulsory education. Elementary education puts emphasis on basic literacy and numeracy skills and cultivates desirable behavior in student. Secondary education is divided into two levels; lower and upper secondary levels. Lower secondary education offers a three-year course, which is geared toward developing the students' ethics, knowledge and abilities. It

allows the students to explore their needs, areas of interests and aptitudes, and enables them to meet their appropriate careers. Upper secondary education is a three-year course as a fundamental stage for students who will proceed to higher education. It also aims to prepare student to meet the labor market and to promote their entrepreneurship skills. There are two streams; vocational-oriented stream which is provided in vocational and technical colleges for the students who are good at skills while academic stream is offered in general education schools for the students who are academically inclined.

Mathematics plays an important role in the development of human mind. It inspires creativity; implants logical and systematic thinking and enables one to make sound and precise analyses of various situations, all of which in turn leads to accurate predictions, appropriate planning, optimal problem-solving and decision-making in daily life. Mathematics also serves as a tool for learning science, technology and other disciplines. Therefore, it can be said that mathematics proves useful in everyday life; not only does it help improve the quality of life but it also enables people to live in harmony with others (The Institute for the Promotion of Teaching Science and Technology, 2008).

The Mathematics Learning Area aims to have all Thai students continuously learning mathematics in accordance with their full potential. The following are critical components of a mathematics program:

- **Number and Operations:** number concepts and number sense, real number system, properties of real numbers, number operations, ratio, percentage, problem solving involving number and application of numbers in real life
- **Measurement:** length, distance, weight, area, volume and capacity, money, time, measurement units, estimation in measurement, trigonometric ratio, problem solving in measurement and application of measurement
- **Geometry:** geometric figures and properties of one-dimensional, two-dimensional and three-dimensional geometric figures, visualization, geometric models, theorem of geometry, geometric transformation (translation, reflection and rotation)
- **Algebra:** patterns, relations, functions, sets and operations, reasoning, expression, equation, systems of equations, inequality, graphs, arithmetic sequences, geometric sequences, arithmetic series, and geometric series.
- **Data Analysis and Probability:** selecting issues, questions and method of study, data collection, organizing data, presentation of data, measure of central tendency and data distribution, analyzing and interpreting data, polls, probability, application of statistics and probability in giving an account of events and assisting in decision making
- **Mathematical skills/processes:** solving problems using various methods, reasoning, communication and presentation in mathematics, connecting mathematical ideas to other concepts in mathematics and to other disciplines.

The learning standards and indicators used at the Grade 3 level that are used in this research are as follows:

Strand 1: Numbers and Operations

Students at Grade 3 should be able to understand the effects of operations on numbers and the relationships among the operations, and use the number operations in solving problem (Standard M 1.2). The indicators are as follows: 1) add, subtract, multiply and divide whole numbers up to 100,000; find the answers up to 3-step calculation involving addition, subtraction, multiplication and division; judge the reasonableness of answers and 2) analyze and solve up to 3-step word problems involving addition, subtraction, multiplication and division of whole numbers up to 100,000 and judge the reasonableness of answers.

Strand 6: Mathematical Skills and Processes

Students at Grade 3 should be able to solve problems, use reasoning; use mathematical language in communication and representation, connect mathematical ideas to other mathematical concepts and to other disciplines, think creatively (Standard M 6.1). The indicators are as follows: 1) use various methods in solving problems, 2) appropriately use mathematical concepts and mathematical processes to solve problems in various contexts 3) use reasoning in decision making and make reasonable conclusion, 4) properly use mathematical language and symbols in communication and representation, 5) connect mathematical ideas to other mathematical concepts and to other disciplines, and 6) think creatively.

Quality of learners:

After the completion of Grade 3, students should be able to 1) understand numbers (whole numbers up to 100,000) and operations; develop number sense; solve problems involving addition, subtraction, multiplication and division; judge the reasonableness of answers, 2) understand the concepts of length, distance, weight, volume, capacity, time and money; use appropriate measurement methods and apply measurement concepts to solve problems, 3) recognize, identify and draw triangles, quadrilaterals, circles and ellipse; recognize and identify cuboids, spheres, cylinders, points, line segments, rays, lines and angles, 4) complete patterns and describe the relationship in patterns, 5) collect and sort data about oneself and familiar surrounding; read and discuss data from picture graphs, bar charts, and 6) use various methods to solve problems; apply mathematical ideas, skills and processes to solve problems in various situations; give reasons for decisions and make reasonable conclusions; use mathematical language and symbols in communication; connect mathematical ideas to other mathematical concepts and to other disciplines; think creatively.

The organization of mathematical learning–teaching at the primary education level in Thailand has been encountering problems all the time, particularly regarding low achievement (Panasuna, 2005). The Trends in International Mathematics and Science Study 2007 (TIMSS–2007) assessed students in 59 countries, including Thailand. Some 5,412 Grade 8 students from 150 Thai schools were involved in the assessment. The results of TIMSS revealed that Thai students scored just 441 points in mathematics on average, in tests in which, world class scores were 500. These results are not satisfactory. Thai children's performance is lower than the previous assessment. Thai children were ranked in 29th place for mathematics, while students from Chinese Taipei, South Korea, Singapore, Hong Kong, and Japan were among the top 10.

Students at Grade 3 must learn four basic computational skills, i.e., addition, subtraction, multiplication and division. However, these skills are found to be difficult for students. The results from National Test in mathematics of Grade 3 students from Wat Nongsue School, Chachoengsao Province, Thailand in academic year 2009 indicated that the mean score was 57.22%, which was less than 60% (criteria set by Chachoengsao Primary Educational Service Area Office 2). The mathematics topics that were found to be problematic for learning are addition, subtraction, multiplication, and division combined. It was found that most of the students lack the computational skill in these topics.

Recently, there are several teaching models used in the classroom such as TAI, STAD, and 4 MAT models. The 4 MAT is an instructional model that has increasingly spread across educational levels and areas of teaching. In studies conducted in elementary and secondary settings, the use of 4 MAT increased learner motivation and improved academic performance

(Blair & Judah, 1990; McCarthy et al. 2002; Wilkerson & White, 1988). Statistically significant gains in content area learning have been found in the areas of mathematics (Liebermann, 1988; Lieberman, 1989; Panasuna, 2005; Peker, 2003; Szewczyk, 1987; Tatar & Dikici, 2009), medical (Spatz, 1991; Erwin, Spatz, & Turturro, 1992), music (Appell, 1991), environment (Demirkaya, Mutlu, & Usak, 2003), and science (Benerzra, 1985; Bowers, 1987; Suvannatouch, 2003; Young, 1986;). In higher education settings, the 4 MAT has been successfully applied in a variety of disciplines, including engineering (Harb, Durrant, & Terry, 1993), law (Kelly, 1990), and tourism (Paraskeva & Sigala, 2003).

THE 4 MAT (4 Mode Application Techniques) is a model that converts learning style concepts into educational strategies. It was developed by Bernice McCarthy in 1980. The model is based on Kolb's (1984) experimental learning theory in the brain hemisphere research findings. The 4 MAT teaching model relies upon the learning loop which includes the four types of students. McCarthy divides this loop into eight steps and designs it as a process that is made up of activities, which are appropriate for the four types of students. In this loop, while teachers revolve around the real, they also teach according to personal differences by using educational strategies suitable for each student's learning styles. The 4 MAT system has two important priorities. The first one is that human beings have got learning styles and preferences to make half hemispheric operations. The second one is that designing and using multiple educational strategies in a systematic environment so as to teach these preferences can develop teaching and learning (Bikmaz, 2002)

McCarthy's 4MAT System is comprised of a series of sequential stages of instruction (an eight step model). 4 MAT's stages of instruction are summarized as follows:

Connect. Connect content knowledge to a concept in a personal way.

Attend. Guide students to reflection and analysis of their experience.

Image. Employ a nonverbal medium to assess students' understanding of the concept.

Inform. Provide students with content knowledge pertaining to the subject.

Practice. Provide students with hands-on activities for practice and mastery.

Extend. Require students to organize and synthesize their learning in some personal and meaningful way.

Refine. Analyze relevant applications of learning (ongoing throughout model)

Perform. Provide opportunities for students to synthesize learning through sharing with others.

The addition, subtraction, multiplication, and division combined is one of the important topics of mathematics and takes place among the first topics encountered by a student at the primary education. In order to increase learner motivation and improved academic performance on addition, subtraction, multiplication, and division combined, the 4 MAT teaching model was used to design learning activities on that topic. Therefore, the purposes of this study were to develop 4 MAT lesson plans on addition, subtraction, multiplication and division combined for Prathomsuksa 3 (Grade 3) students with an efficiency criterion of 80/80, study the effectiveness index of 4 MAT lesson plans, study the students' learning achievement after learning using 4 MAT lesson plans, study the students' satisfaction after learning using 4 MAT lesson plans and study the number of students who obtained 70 percent of total scores.

METHODOLOGY

Participants

The participants in this study were 22 Grade 3 students, 10 boys and 12 girls, studying in the second semester of 2010 academic year at Wat Nongsue School under the Office of Chachoengsao Educational Service Area 2, Thailand. They were purposively selected.

Instrumentation

Three types of research instruments were used, i.e., 4 MAT lesson plans on the addition, subtraction, multiplication, and division combined; the mathematics achievement test; and the Mathematics Satisfaction Scale. The data were statistically analyzed by percentage, mean, standard deviation. The research hypotheses were tested by using *t*-test (Dependent Samples) and Chi-square test.

The mathematics achievement test developed by the researchers was administered to all students in this study both as the pretest at the beginning of the study and as the posttest at the end of the study. It included 30 items with 4 multiple choices. The degree of difficulty was between 0.43–0.78. The discrimination index was between 0.40–0.85. This shows that each item had a satisfactory level of discrimination. It could be said that the test items developed are suitable to measure students' knowledge on the topic of addition, subtraction, multiplication and division combined. The reliability of the test was 0.93, indicating that the reliability of the test items was at an excellent level.

To measure students' satisfaction towards 4 MAT learning activities, the researchers administered the Mathematics Satisfaction Scale after treatment. This instrument was developed by the researchers. It consisted of 15 items made up of all positively worded items to which the students were expected to respond by expressing their level of satisfaction or otherwise on a five-point Likert scale of at least satisfied rated 1, somewhat satisfied rated 2, fairly satisfied rated 3, very satisfied rated 4, and most satisfied rated 5. The scale was validated for its content by reviewers ($n = 5$) with expertise in the field. The instrument was pilot tested by administering to 30 students who were not part of the target population. The discriminations were between 2.21–5.66 and the Cronbach alpha value obtained was 0.90, which showed that this scale was reliable, and can be used for the study.

Research Design

In this study, research design was one group pretest–posttest design as shown in Table 1 below:

Table 1

Research Design for this study

| Group | Pretest | Treatment | Posttest |
|--------------|----------------|------------------|-----------------|
| Experimental | T ₁ | X | T ₂ |

As shown in Table 1 above, T₁ was pretest, X was the learning mathematics via 4 MAT lesson plans or treatment, and T₂ was posttest, respectively.

A pretest was administered to all of students at the beginning of a class. They then were taught mathematics on addition, subtraction, multiplication and division combined using 4 MAT learning activities. Next, a posttest was administered to all students after finishing all of the lessons. Finally, all students were asked to complete the questionnaire focusing on their satisfaction about learning via 4 MAT lesson plans.

Data Analysis

The data were analyzed as follows: finding the efficiency of 4 MAT lesson plans; secondly, finding the effectiveness index of the learning process, following a method of Goodman, Fletcher and Schneider (1980), comparing the students' learning achievement before and after using the 4 MAT learning activities, finding students' satisfactions towards the 4 MAT learning activities and finally, finding the number of students who obtained 70 percent of total scores.

The data were statistically analyzed by percentage, mean, standard deviation. The significance level was set to .05 since it is the most used value in educational studies. The research hypotheses were tested by using *t*-test (Dependent Samples) and Chi-square test.

FINDINGS AND INTERPRETATIONS

The findings of the current research revealed five aspects that are worth discussing: efficiency of 4 MAT lesson plans, effectiveness index of 4 MAT learning activities, learning achievement of students participating in 4 MAT lessons, students' satisfactions towards the 4 MAT learning activities and the number of students who obtained 70 percent of total scores.

The result illustrated that the Efficiency of the process (E_1) was 87.19 and the performance result (E_2) was 83.63. 4 MAT lessons on addition, subtraction, multiplication and division combined showed efficiency (E_1/E_2) of 87.19/83.63. This was higher than the given criterion of 80/80 (Table 2).

Table 2

The efficiency of 4 MAT lesson plans

| Academic performance | Score | N | \bar{X} | SD | Percentage |
|-------------------------------------|--------|----|-----------|-------|------------|
| Process effectiveness (E_1) | 10,358 | 22 | 470.82 | 36.30 | 87.19 |
| Performance effectiveness (E_2) | 552 | 22 | 25.09 | 4.32 | 83.63 |

The effectiveness index (E.I.) of 4 MAT lesson plans was at 0.77, representing 77%. This was higher than the given criterion of 70% and indicated that with the experience of tackling 4 MAT lessons, the students sample had gained more knowledge (Table 3).

Table 3

The effectiveness index (E.I.) of 4 MAT lesson plans

| N | Score | Score | | Percentage | | E.I. |
|----|-------|-------|------|------------|-------|------|
| | | Pre | Post | Pre | Post | |
| 22 | 660 | 193 | 552 | 29.24 | 83.63 | 0.77 |

As it is seen in Table 4, the mean score achieved by the sample before and after the experiment was 8.77, 25.09, respectively with standard deviations of 3.22, 4.32, respectively. The result from testing revealed that the posttest scores of students were significantly higher than their pretest with .05 significant differences. This means that the designed lessons effectively improved learning outcomes of the students. The learning improvement rate of the students was 54.4%. According to the results obtained, there is a 16.32 point difference in favor of the posttest between the means of the scores that the students got in the pre and post achievement tests. This difference can be named as the average achievement score that the students obtained. The “*t*” value has proved to be significant according to the results of a paired *t*-test that has been conducted to learn the significance of the difference between these average scores that the students obtained in the pre and post tests [$t = 18.36; p < .05$].

Depending upon the findings, it can be said that the experimental program that has been constructed according to the 4 MAT learning activities has been effective for the success of the students on Addition, Subtraction, Multiplication and Division Combined. It also found that after learning through 4 MAT teaching methods, the average percentage score of students’ mathematics learning achievement was 83.63%, which was higher than the set criteria of 70.00%. The comparison of the students’ pretest and posttest scores can be illustrated in Table 4.

Table 4
 Comparing of Pretest and Posttest Scores of Students

| Test | Score | | | | | |
|----------|---------------------|-----------|-----------|----------|------------|----------|
| | No. of Students (N) | \bar{X} | <i>SD</i> | $\sum D$ | $\sum D^2$ | <i>t</i> |
| Pretest | 22 | 8.77 | 3.22 | 359 | 6223 | 18.36* |
| Posttest | 22 | 25.09 | 4.32 | | | |

Note. * $p < .05$ ($df = 21, t .05 = 1.721$)

The Mathematics Satisfaction Scale, conducted after 22 Grade 3 students had completed the lessons, revealed that the sample students were most satisfied with the 4 MAT learning activities ($\bar{X} = 4.81, SD = 0.52$). The criterion for interpreting students’ satisfactions towards the 4 MAT learning activities was shown as follows: Rank 1.00–1.50 means “Least satisfied”; 1.51–2.50 means “Somewhat satisfied”; 2.51–3.50 means “Fairly satisfied”; 3.51–4.50 means “Very satisfied”; and 4.51–5.00 means “Most satisfied”.

The result also indicated that the number of students who obtained 70 percent of total scores was 90.91 percent upward at .05 level of significance [$\chi^2 = 5.24$].

CONCLUSIONS AND DISCUSSION

The efficiency of 4 MAT lesson plans was 87.19/83.63, which was higher than that of the criterion 80/80. The results illustrated that the first efficiency of the process (E_1) were higher than the second efficiency of the outcome (E_2). This means that the students got activity scores greater than their posttest scores. This is because they had done repeated activities; they can revise, do the activities and check the answers by themselves before doing the posttest. Consequently, they can encourage themselves to learn through the 4 MAT activities. Moreover, the efficiency of the outcomes was lower than the efficiency of the process since

the posttest was more difficult than the activities. This finding partially is consistent with the finding in Tadnamthong's (2005) study. She studied the effective of achievement in learning mathematics "Fraction" of 36 Grade 5 students by using 80/80 standard. The result indicated that the subject mean score from the achievement in learning mathematics by using 4 MAT lesson plan of Grade 5 students has an efficiency 89/81.91 which met the standard. It is also consistent with the Sane'e's (2008) findings. She studied Grade 4 students' achievement on fractions in mathematics learning substance group by using the 4 MAT teaching model. The samples in this study were selected by purposive sampling technique. There were 27 students in Grade 4 in the first semester of academic year 2008 at Banpakphreag School, Amphoe Bangkhan, Nakhon Si Thammarat Province. The research result also indicated that the effectiveness of the 4 MAT lesson plans on Fractions in Mathematics learning Substance group for Grade 4 students were 86.81/84.44 which also met the standard.

The result of this study also revealed that the effectiveness index of 4 MAT lesson plans on addition, subtraction, multiplication and division combined was at 0.77 which is indicated that learners progressed in learning at 77%. This could be explained that the 4 MAT lesson plans support individual learning. Students can learn in accordance with their interests, skills and their appropriate time. Students were interested in and enthusiastic in learning, responsible for their assignment, happy and joyful, show unity in group. They showed their attempt in challenging capability. They were proud of successful work performance and able to apply their knowledge to be useful. This finding is consistent with the finding by Keaw-on (2009) that the plans for organization of learning activities using 4 MAT learning cycle approach entitled Graphic and Longitudinal Measurement for Grade 3 students had efficiencies of 79.40/77.78, which met the required criterion of 75/75. The effectiveness indices of learning plans by using 4 MAT learning cycle approach were 0.5754; showing that the students had learning progress at 57.54 percent.

Moreover, the students' learning achievement after using 4 MAT lesson plans was statistically significant, which was higher than that before using lesson plans at the level .05. The result revealed that students who learned addition, subtraction, multiplication and division combined through 4 MAT lesson plans had higher mathematics learning achievements on posttest mean scores than in pretest mean scores with statistically significant difference at a .05 level. Thus we could conclude that 4 MAT lesson plans had efficiency because it could lead the students achieve higher learning. This finding is in line with the finding by Chanclai (2002) who studied the research in order to compare creative thinking and mathematics achievement on quadrilateral of Grade 6 students taught by the 4 MAT system and the conventional method. The result revealed that the posttest mathematics achievement of the students taught by the 4 MAT system was significantly higher than that of the pretest. ($p < .01$). This result is also consistent with research finding of Songseeda (2008) who studied mathematics achievement and mathematical communication skills of Grade 7 students before and after being taught through the 4 MAT system and compare to the criterion. The result of the study indicated that the mathematical achievement of the experimental group after being taught through the 4 MAT system was statistically higher than before being taught at the .01 level of significance.

The result of this study also illustrated that students' satisfactions in learning addition, subtraction, multiplication and division combined through 4 MAT learning activities were at the highest level (most satisfied). It is consistent with the finding by Konmun (2009) that the students' opinions on learning mathematics through 4 MAT teaching method was at very agreeable level.

The investigation also revealed that the number of students who obtained 70 percent of total scores was 90.91 percent upward at .05 level of significance. The finding is in line with the finding of Songseeda (2008) who found that the mathematical achievement of the experimental group after being taught through the 4 MAT system was statistically higher than the 70 percentage criterion at the .01 level of significance. It is also consistent with another study that found that the 6 learning plans constructed through 4 MAT teaching method consumed 12 teaching hours could develop mathematics learning of Grade 4 students. After learning through 4 MAT teaching method, the average percentage score of students' mathematics learning achievement was 68.22%, which was higher than the set criteria of 60.00% (Konmun, 2009).

In conclusion, the researchers' developed 4 MAT lesson plans on addition, subtraction, multiplication and division combined for Grade 3 students had a high efficiency and effectiveness. Therefore, these lesson plans could be used as a guideline for teachers and students in developing and improving their mathematics learning achievement and satisfaction of learning on addition, subtraction, multiplication and division combined. Accordingly, administrators, teachers, and related persons in learning management should apply the 4 MAT lesson plans on addition, subtraction, multiplication and division combined for Grade 3 students to develop instruction in other contents.

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*Factors Affecting the Market Mix of Hydroponics Vegetables, Seaweed, and
Mushroom*

Pornpimol Viriyakul

Rajabhat Rajanagarindra University, Thailand

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Abstract

The study was aimed to determine the factors affecting market mix of vegetables grown by hydroponics, seaweed, and mushroom, which would lead to market development of the processing products under Bangkokla Natural Innovative project of Rajabhat Rajanagarindra University. Two hundred participants were picked from tourists who visited Chachoengsao province and ordinary consumers who lived in Chachoengsao province, Thailand. The participants were selected by using systematic sampling method, and the data was analyzed by the multiple regressions. This study revealed that the size of family and their income were factors that affected market-mix products of hydroponics vegetable, seaweed, and mushroom, which were statistically significant at the level of 0.05. Other factors affecting the market-mix products of those given vegetables were the products, price, place, and the promotion. The sequences of favorite processing products of hydroponic vegetables were in the form of salad, salt preserved products, and dried products, respectively. The favorite processing products for main courses were in the form of fresh seaweed noodle, dry noodle, and seaweed mix chili paste, while the processing products for snack were in the form of seasoning seaweed crispy chip, seaweed sheet, and seaweed mixed bread. The favorite processing products of market-mix of mushroom for the main course were those that prepared in the form of canned mushrooms, mushroom sheet, and mushroom ball, respectively. Moreover, the favorite processing products of mushroom for snacks were mushroom crispy cake, mushroom bread sheets and jelly mushroom, respectively.

Keywords: Hydroponics vegetables, seaweed, and mushroom

1. Introduction

Crops are sources of foods for livestock and mankind that providing necessary nutrition for human body in which other kinds of food could not provide or not enough for livestock and mankind. There are some crops that can be used as sources of protein and fat, where some groups of people having them in substitution for animal meats. The price of crops is also cheaper than meats but the compositions of crops are highly in nutrition. Crops are important sources of energy and nutrition for human body such as fiber, vitamin, carbohydrate and protein. Vegetables help the digestive system to reduce the acidic condition in human body due to the consumption of meats products. The fibers in vegetables help to normalize the excretory system by reducing the intestinal pain and chances of colorectal cancer. It also helps reducing Cholesterol, controlling weight, and preventing the appendicitis. There are several crops, which are quite popular among Thai people, i.e., cabbage, lettuce, morning glory and kale as vegetables. These crops are internationally well known vegetables. Other crops such as weed, mushroom, tomato, all kinds of bean, and melons are also very popular in foreign countries.

Vegetables are necessary for human body in everyday life because of the nutrition that support the health and strengthen the body structures. It enhances an effectiveness of excretory system because of the enrichment in vitamin and minerals. However, the newly processing technology nowadays is used to reduce manpower and processing time, resulting in intensive use of agricultural chemical, while the crops are vulnerable to diseases and insects where the chemical is inevitably being used. Many crop growers are less knowledgeable concern of how to increase the production, processing, and marketing of crops. Some are selling vegetable that used toxic chemical together with safe vegetables resulting in misunderstanding of consumers between bio-based products and chemical-based products.

Food safety issues concern safe vegetable products become the prominent national agenda. To standardize the production and processing of safe foods, and enable consumers of both Thai and foreign countries gain accesses to safe foods, all processing should be done in order to produce foods free of chemical toxic residues or not exceed the standards of the Ministry of Public Health from farms to tables. Thai Fund for Health Promotion has supported food safety issue since 2004 in helping the nation to create awareness among consumers in health conscious regarding the food safety, fresh, and clean vegetable products. Some groups of consumer are interested in safe vegetables products. The safe vegetables mean that the production and processing are fully concerned about safety products free from chemical toxic residues or food safety, and if there are any residues remained, it should not exceed the standard level of CODEX (Codex Alimentarius) defines by FAO (Food Agricultural Organization) and WTO (World Trade Organization). In Thailand, Department of Agricultural Extension under Department of Agriculture and Health Ministry defines the standards.

The current trend of market for fresh vegetables products has changed dramatically. The increase in variety of products can be observed such as local cash crops both from tropical and temperate zones, which include the imported ones. A wide variety of cash crops are available all year round for consumers to select it. Apart from varieties, the productions of these cash crops are performed in many ways, i.e., soil-based growing with natural fertilizer, chemical-fertilizer, and growing plants in sand, gravel, or liquid, with added nutrients but without soil or hydroponics. There are several changes in quality control of production and distribution, too.

These efforts are bring up concerns of the “Safety” for both producers and consumers, and also creating the differentiation of products and value added, creating the competitiveness in local and abroad markets. In terms of healthcare for the consumers, they have more choices to select for their own safety. This reflect the care that the government provides for local consumers and also prepare for exploring international markets by strengthening the standard of agricultural products and foods to meet the international standards for the fairness in international trade.

The target population of consumers for safe foods in Thailand is around 8-10 million people, which is quite a large number who interested in consuming safe foods. There are many foreign tourists occasionally traveling in Thailand who are preferred to consume safe foods. The industry of safe agricultural foods in Thailand is expanding. The price is higher than ordinary foods for 20-30 percent. Due to the awareness of food safety and health consciousness in the foreign markets, it leads consumers paying attention to safe foods and non-chemical agricultural products. The world market value is approximately 14,000 million dollars or approximately 560,000 baht, the growth rate is approximately at 25% annually.

The developmental approach of Rajanagarindra Rajabhat University at Bangkhla campus, which approved by the University Council, has focused on sustainable development of Rajanagarindra Rajabhat University by improving process and procedures in proactive ways in accordance with its missions that emphasize on providing services, organizing activity by community empowering to develop Bangkhla communities. The working committee of Rajanagarindra Rajabhat University at Bangkhla campus has created a project of Natural Innovative with the plan to produce three kinds of crops, i.e., hydroponics vegetables, edible seaweed, and mushroom.

To follow the aforementioned policy, the researcher carried out this research. The Approach was emphasized on market development of safe vegetables products, i.e., hydroponics vegetables, edible seaweed, and mushroom. The study was aimed to search for appropriate approach for the product development of three crops as mentioned, to satisfy the consumers and tourist in order to establish the Service Link Center leading to the commercial development of products. In addition, the knowledge from the research would be beneficial for the growers and general public, too.

2. Literature Review

Wier et al. (2003) showed that the behavior and attitudes of the organic-fertilizer fruits consumers had concluded that health hazards were the main motivation for purchasing of organic-fertilizer fruits and pesticide free fruits. Consumers that are confidence in vegetable consumption are dwindling as many consumers become aware of the unhealthy practices employed for the production of conventional growing of vegetables and the health risks associated with the consumption of their products. Studies conducted in Ghana (Oboubi et al., 2006) found that vegetables produced in and around suburban centers had residues such as chemical deposits and fecal coliform bacteria. This study was conducted as part of a collaborative initiative among four West African countries, i.e., Ghana, Benin, Burkina Faso, and Senegal. It was aimed at ascertaining farmers' and consumers' awareness and perceptions on production and consumption of organic vegetables. It was also aimed at coaching them on how to produce or obtain and consume safe vegetables. Much attention was paid to the use of chemical pesticides in vegetable production and the presence of chemical residues on vegetables and vegetable products. It also set up to provide data for the production of safe

vegetables in West Africa. In doing this, the study assessed the general knowledge and perceptions of consumers about safe vegetables and determined the market potential for their production in Ghana. This paper provides information on consumers' perceptions, purchasing behavior and willingness to pay for safe vegetables in the cities of Kumasi and Cape Coast in Ghana (Aceampong P. P. et al, 2012)

There are many advantages of hydroponic vegetables. They can be grown throughout the year. They can grow rapidly both in a limited area and the poor soil. Moreover, the quality of the product is also high (Carson W. H., 2013).

Spirulina (Dillon et al, 1995) is a microscopic and filamentous Cyanobacterium that derives its name from the spiral or helical nature of its filaments. It has a long history of use as food and it has been used during the Aztec civilization. *Spirulina* refers to the dried biomass of *Arthrospira platensis*, which is an oxygenic photosynthetic bacterium found worldwide both in fresh and marine waters. This alga represents an important staple diet in man and has been used as a source of protein and vitamin supplement in man without any side effects. Apart from the high content of protein (up to 70%), it also contains vitamins, especially B₁₂ and provitamin A (β -carotenes), and minerals, especially iron. It is also rich in phenolic acids, tocopherols and γ -linolenic acid. *Spirulina* lacks cellulose cell walls and therefore it can be easily digested

An international detective hunt has been underway for 40 years. Researchers in Japan, China, India, Europe, USA and other countries are discovering how and why this alga is effective for human and animal health. Hundreds of published and reviewed scientific studies have focused on how *Spirulina* become to be a source of food, its phyto-nutrients and extracts boost the immune system and improve health. A more complete scientific bibliography and reference guide is available in the book "*Spirulina, whole Food*" and at the website "*Spirulina Source.com*". The following summary briefly touches on some important areas of research and findings that *Spirulina* stimulates the immune system, increases anti-viral activity, offers anti-aging and neuro-protective benefits, reduces risk of cancer, reduces kidney toxicity, builds health lactobacillus, overcomes mal-absorption and malnutrition, improves wound healing, and reduces radiation sickness (Henrikson, 2011).

Once the mushrooms are taken into consideration, there are too small proteins in mushroom. The proteins are used in the body of humans and animals, while the dried mushrooms still conserve the proteins. In order to get full proteins, we must eat two kinds of mushrooms for a day in order to have the essential amino acids, vitamin E, vitamin C, B complex and Riboflavin (Christopher H,1995).

One aspect of interest is the consumer behavior, which is concern with the individual, group or organization. It is about the process for selecting, having more confidence, using and eliminating the products, serving the experience or ideas in order to meet the needs and preferences, and the effect of those processes on the consumer and society. The most prevalent model from this perspective is 'Utility Theory', which proposes that consumers make choices based on the expected outcomes of their decisions. Consumers are viewed as rational decision makers who are only concerned with self-interest (Kotler, 2000, Schiffman and Kanuk, 2009).

The results of the two surveys, both in China and in America, were quite similar about awareness of green products, which were better for the environment. Furthermore, the North

America has slightly higher scores, where about 80% of US consumers will buy green products if the product is available to them and at a similar cost. In China, that figure is 75% of consumers (Cross et al, 2013).

Terms in used

Hydroponics vegetables are vegetables that grow up not on soil but using liquid compound that full of nutrition. The compound flows through the roots of the vegetable constantly enable the vegetable to obtain oxygen enough to stimulate the growth.

Edible seaweed means algae *Spirulina* and its related products.

Mushrooms are fresh mushrooms and its related products, which manufactured under the BangKhla Natural Innovation project.

The demand is defined as objects that consumer requires in order to response to their consumption need. In this research, the focus is the demand regarding products, price, distributed channels and market promotion.

Consumers' behavior defined as the process of decision to buy and consume the products. The study will determine who are the target market, type of product purchased, why, where, and how.

3. Research Method

3.1 Research Methodology

In this study, the researcher was focused on the study of the consumer's behavior of hydroponics vegetables, edible seaweed and mushroom among the tourists and general consumers in Chachoengsao province, and to recommend the approach for market development of hydroponics vegetables, edible seaweed and mushroom in response to the demand and to satisfy the tourists and general consumers by using market mix in Chachoengsao province.

The population and sample: The populations were consisted of 200 tourists and 200 consumers in Chachoengsao province. The systematic sampling method was used to select the samples. The research instrument was the questionnaire, which developed by the researcher. It consisted of three sections. Part one was the enquiry regarding the social environment such as size of the family and personal variables, such as gender, age, income, education and occupation. Part two was the enquiry regarding the market mix of the demand for hydroponics vegetables, edible seaweed and mushroom as type required products. Part three was the enquiry regarding the behaviors of hydroponics vegetables, edible seaweed and mushroom using five levels of rating scale, which the data were analyzed by the ANOVA and multiple regression.

3.2 Conceptual approach of the research

This research was aimed to study the approach for the market development of safe vegetables products, i.e., hydroponics vegetables, edible seaweed and mushroom. The conceptual approach is summarized in Figure 1

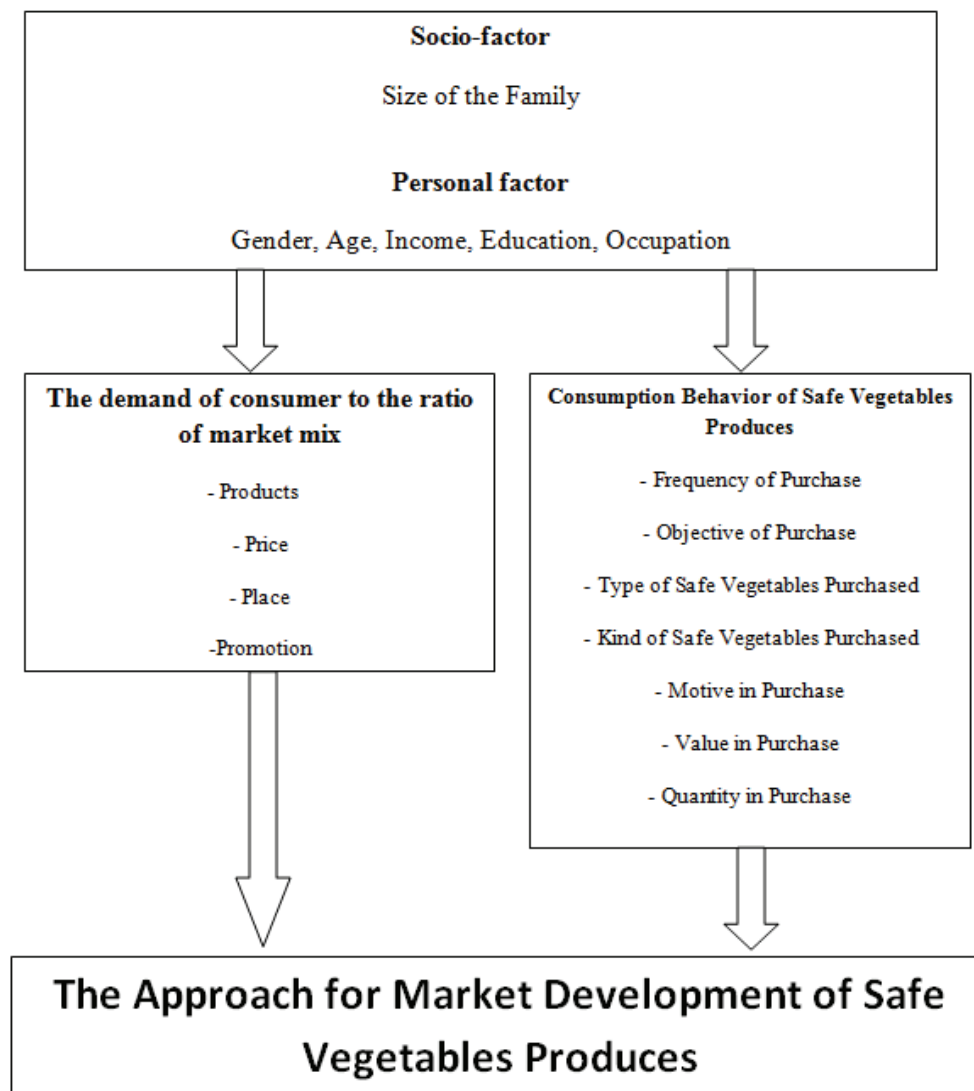


Figure 1: Conceptual Approach

4. RESULTS AND DISCUSSION

Results of an analysis of the factor affects the market mix of safe vegetables products found that all independent variables could be used to predict ratio of attitude toward market mix at 13 percent with an error of 0.391. The most effective variables to predict the attitude were the business owners, occupation, students, size of family and income, respectively.

Table 1: **One-Way ANOVA**

| Source of Variance | SS | df | MS | F | p |
|--------------------|---------------|------------|------|-------|------|
| Regression | 4.634 | 9 | .515 | 3.352 | .001 |
| Residue | 31.794 | 207 | .154 | | |
| Total | 36.427 | 216 | | | |

** p< .01

From table 1, it indicated that several independent variables were related to dependent variables. It implied that at least one variable was able to predict the attitude toward the market mix of safe vegetables produces with statistical significant at .01.

Table 2: **Statistical score to predict the attitude toward market mix of safe vegetables products.**

| Variables | <i>b</i> | <i>S.E.b</i> | β | <i>t</i> | <i>p</i> |
|-----------|----------|--------------|-----------------------|-----------------------|----------|
| GENDER | -0.84 | .056 | -.102 | -1.499 | .135 |
| SIZE | -0.63 | .025 | -.169 | -2.483* | .014 |
| AGE | .005 | .003 | .149 | 1.892 | .060 |
| OCCU1 | .374 | .139 | .292 | 2.702** | .007 |
| OCCU2 | .055 | .127 | .040 | .430 | .668 |
| OCCU3 | .131 | .107 | .151 | 1.223 | .223 |
| OCCU4 | .285 | .104 | .334 | 2.742** | .007 |
| EDU | -.041 | -.041 | -.118 | -1.648 | .101 |
| INCOME | .001 | .001 | .146 | 1.998* | .047 |
| A | 3.836 | .188 | | 20.429** | <.000 |
| | | $R^2 = .127$ | Adjusted $R^2 = .089$ | <i>S.E.est</i> =0.391 | |

* $p > .05$, ** $p < .01$

From Table 2, all variables could be used to predict the attitude toward market mix of safe vegetables products at 13 percent with the error in predicting was 0.391. This was the additional work of researcher to find the personal factor that affects the market mix.

The most effective variable to predict the attitude toward market mix of safe vegetables products were the business owner (OCCU4) ($\beta = 0.334$) with significant at the level .01, next was a private employee and student (OCCU1) ($\beta = 0.292$) with significant at the level .01, size of family (SIZE) ($\beta = 0.169$) with significant at the level .05, INCOME ($\beta = 0.146$) with significant at the level .05, respectively. For other variables, the prediction power was not very significant.

The data could be derived from a formula as follow,

$$\text{ATTITUDE} = 3.836 - 0.84(\text{GENDER}) - 0.63(\text{SIZE}) + .005(\text{AGE}) + .374(\text{OCCU1}) + .055(\text{OCCU2}) + .131(\text{OCCU3}) + .285(\text{OCCU4}) - .041(\text{EDU}) + .001(\text{INCOME})$$

And could be derived from standard prediction score as,

$$\begin{aligned} \text{ATTITUDE} = & -.102(\text{GENDER}) - .169(\text{SIZE}) \\ & + .149(\text{AGE}) + .292(\text{OCCU1}) + .040(\text{OCCU2}) \\ & + .151(\text{OCCU3}) + .334(\text{OCCU4}) - .118(\text{EDU}) + .146(\text{INCOME}) \end{aligned}$$

Most of the respondents were female (55.80 percent), whereas 44.20 % were male. It was found that 52.00 percent were single regarding to their marital status, while 40.70 % were married and 3.80 percent were divorced, respectively. The family size of 4 persons was 33.50 percent, more than 5 persons in family was 28.20 %, and 1-2 member was 19.80 percent, respectively. The average age was 33 years, the age range between 20-29 years was the highest percentage (32.90%), the age range between 30-39 years was 26.40 percent, and the age range between 40-49 years was 21.70 percent, respectively. Most of the participants were business owners (36.20 percent), private company employees (28.10 percent), and students (18.00 percent), respectively. It was found that the educational level of the participants with bachelor degree, while those who finished high school was the highest group (47.30), 20.70 percent were graduated from vocational schools, and 14.10 percent were obtained diploma.

An average income per month was 12,000 THB, while 32.40 percent of the participants' incomes were ranged between 10,000-19,000 THB, 32.00 percent of the participants' incomes were below 10,000 THB, whereas 17.30 percent of the participants' incomes were ranged between 20,000-29,999 THB, respectively.

Results of the analysis for the consumption behavior of safe vegetables found that 48.70 percent of the respondents purchased products mostly 1-2 days per week, where 26.80 percent purchased in the range of 3-4 days a week, and 14.20 percent purchased everyday, respectively. Once the purpose of buying for household consumption was analyzed, it was found that the highest category was 61.10 percent, 33.30 % was for personal consumption, and 3.89 % was for giving to others. The hydroponics vegetables were the highest demand (57.10 percent), while mushrooms were accounted for 29.20 percent, and the consumable weed was 13.70 percent. In terms of related products, the hydroponics vegetables salads were the highest items (65.50 %), where the preservative items were 7.50 percent and dried items were 6.30 percent shared among the products. The demand for edible seaweed as normal meal as noodle was 14.00 percent, where 13.30 % were dry and crispy seaweed, 8.30 percent were chili paste mixed seaweed. The demand for edible seaweed as snack such

as seasoning crispy cake was 20.00 percent, while 9.80 % were dry seaweed, and 8.80 % were bread mixed weed. The demand for mushroom as normal meals of seaweed-ball was 11.80 percent, while 10.80 percent were chili paste mushroom TA-DAENG, and 9.00 percent were chili paste mushroom NUM-PIC-NOOM 9.00. The demand for mushroom as snacks such as crispy chip mushrooms was 15.30 percent, while 14.30 percent were baked bread mushroom, and 6.00 percent were jelly mushroom. The motive to eat safe vegetables was come to consideration, it was found that 78.20 percent were concerned with personal and family health, while 9.10 percent were related to support growers and for safety of human and environment, and 7.00 percent were related to a variety of choices. The expenses for safe vegetables products, which were accounted for the range of 51-100 THB weekly were 32.30 percent, while 23.10 percent were spent between 101- 150 THB, and 22.60 percent were spent more than 200 THB per week, respectively. The compositions of safe vegetable in cooking, which used two items were 31.80 percent, while 28.40 percent was used three items for cooking, and 28.20 percent were fully used of safe vegetables products.

Results of the analysis of the attitude toward market mix showed that the products and place were the highest concern factor with price was the second factor, while the promotion factor was also high. Once all factors were considered in total, the average attitude toward market mix was high. When an analysis was done in details, it was found that the packaging of safe vegetables products should be related to growing process and the nutrition was the highest. The next attitude factor was the decoration of stores, the cleanliness, and the displays were the decision making of the purchases. In addition, the changes in price also affected the buying decision. Although the price of safe vegetables products seemed to be higher than normal but it reflected the quality of products, which showed the least average scores.

Once the products were considered, the average score related to the given information of growing process and nutrition for vegetable was the highest one. The products should differentiate its packaging and should be available throughout the market for consumers. It should have more variety of products. The vegetables that had signs of insect bite, which used to convince the consumer that it was safe products, had the lowest score.

In terms of price, the average score of changing the price of products affected the decision of consumers to buy safe vegetable products was the highest one; where the pricing of products was based on cost of production. The price of the products was the fundamental factor in decision making to buy of the consumers. The pricing of safe vegetable products to a certain position as a high-end product earned the lowest score.

In terms of distribution channel, the highest score was related to the decoration, tidiness, and displays, while the integrity of the store was a reason for decision making to the purchase. The proximity of the store was also one of the reasons that affected the purchase, whereas the convenience for consumers to buy safe vegetables earned the lowest average score.

In terms of the promotion, the most effective way was an advertisement through newspaper, radio, and television to help consumers to make a decision. It was shown that the campaign ran by government also increased the consumption. The price reduction was also induced the consumption of safe vegetables. The logos or brand of the products had the lowest average score.

5. Summary and conclusions

This study showed that hydroponics vegetables received the highest score from consumer needs, while the market mix of hydroponics vegetables was quite popular because of consumer's behavior, which selected at least two kinds of hydroponics vegetable from many kinds of vegetables to cook food. Furthermore, mushroom and seaweed received the second and third average score, which could support the processing product more than hydroponics vegetables. Therefore, it should encourage and promote the production of mushroom and seaweed to be available in the market of vegetables. Moreover, it was shown that consumers were motivated by the save vegetables because the health of consumers and member of family appeared to be healthy, resulting in the continuous growing of the market for save vegetables.

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CABI J. C.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is enclosed within a large, light blue circular arc that is partially visible at the top and bottom. A red, curved brushstroke-like element is also present, curving around the left and bottom-left sides of the central text.

*Disappearing States:
Ecological Canaries in the Coal Mines of the Sea?*

Thomas Simon

Johns Hopkins University-Nanjing University, China

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Abstract

The disappearing nation of the Maldives and its sister island states (Kiribati and Tuvalu) pose a challenge to philosophy, policy, and law. Many of those who take a holistic ecological perspective see these, much like the canaries in the coalmines, as early warnings signs of the cataclysmic effects of climate change. The current international system is based on the creation of states with fixed populations and defined territories. International law has no mechanisms for dealing with the extinction of states. Drastic problems call for drastic solutions such as recognizing states without territories. Policy makers should not treat nuclear war as gang violence. Similarly, they should not approach climate change as if it were like pollution.

Yet, a piecemeal, environmental approach does provide a solution to disappearing states. Amending the Law of the Sea Convention to freeze baselines at current levels would have an enormous impact since it would assure these states as well as those with threatened coastal communities with rights to the living and nonliving resources within their Exclusive Economic Zones (EEZ). Kiribati has nearly the same size EEZ as Japan and nearly four times the EEZ size of China, which, in turn, has about the same size EEZ as the Maldives and Tuvalu. International refugee law would not have to find a new classification for the environmentally displaced citizens of these islands. With funds from selling the rights to these resources, these citizens would have sufficient funds to relocate almost anywhere.

The canary in the coalmine does not symbolize a dire warning of ecological catastrophe but rather a potent warning of how fear conjured by over-dramatizing challenges turns us into meek canaries.

Introduction

Why do nations fail? The authors of *Why Nations Fail* set out to provide answers, but, first, they teasingly ask “Is it culture, the weather, geography?” Their answer: “Simply no. None of these factors is either definitive or destiny.”¹ Apparently, these authors never visited the Maldives and other submerging nations. The weather in the form of rising sea levels has created a fairly definitive destiny of extinction for a number of island nations.

If they had visited the Maldives on October 17, 2009, they would have witnessed an extraordinary event. Mohamed Nasheed, president of the Maldives, held an underwater meeting for one hour with his ministers, in their scuba gear.² The officials limited their discussions to hand signals, but those listening heard their message loud and clear. Climate change would claim its first victim. The Maldives, the flattest nation on earth, eventually will find itself—like its cabinet—under the sea.

I shall propose a simple solution to this difficult and dramatic problem of disappearing island-states. However, I shall deviate from providing the typical road map of what is to come to lend a air of mystery to the un-mysterious and to give the argument an unimpeded flow. Further, I shall keep the length of this essay to a minimum to clearly reveal the overall structure of the argument. Readers interested in the details of environmental philosophy and international law have plenty of sources to reference.

Ecological Holism versus Piecemeal Environmentalism

Climate change, allegedly, does not just pose one more environmental problem among many—to be added to a long list of global woes. Apparently, climate change symbolizes a catastrophic beast about to devour the entire planet. Only superlatives such as “cataclysmic” can capture its momentous force. To downplay its importance is to loose precious moments of hope to counteract the devastation already left in its wake.

“To describe these challenges as problems of pollution is to stretch the meaning of the word beyond recognition. Global warming is as different from smog in Los Angeles as nuclear war is from gang violence. The ecological crisis we face are more global, complex, and tied to the basic functioning of the economy than were the problems of environmentalism was created to address forty years ago. Global warming threatens human civilization so fundamentally that it cannot be understood as a straightforward pollution problem but instead an existential one. Its impact will be so enormous that it is better understood as a problem of evolution, not pollution.”³

Up until the discovery or recognition of climate change, humans could afford environmentalism—a piecemeal approach, dealing with one problem at a time. Climate change, supposedly, calls for a much more drastic, radical, holistic approach—in short, an ecological perspective.

Within an ecological framework it becomes apparent that pollution is to climate change as gang violence is to nuclear war. To mistake climate change for pollution would be tantamount to treating nuclear war as gang violence. Indeed, the analogies

used to conceptualize problems proves telling. Here, as we shall see, analogies can distort and mislead—diverting efforts away from the unglamorous, nitty-gritty work that, however piecemeal, might just provide the solutions.

Perhaps, however, the case of the Maldives⁴ and its sister island states (Kiribati, Marshall Islands, Tuvalu⁵) do provide the world with the water situated equivalent of the canary in the coalmine. In the early days, coal miners carried caged canaries down into the pits. These smaller and more sensitive creatures would give miners ample warning when the environment became unsafe for human habitation.

As seen from the table below, the most vulnerable island nations have many things in common.

| STATES | Independence | Area/km ² | Population | GDP/Capita |
|-------------|--------------|----------------------|------------|------------|
| Kiribati | 1979 (UK) | 800 | 100,000 | \$1,592 |
| Maldives | 1965 (UK) | 300 | 300,000 | \$5,973 |
| Marshall Is | 1975 (“US”) | 200 | 60,000 | \$2,900 |
| Tuvalu | 1978 (UK) | 26 | 10,000 | \$3,400 |

They recently gained independence; they have small populations that reside on small areas of land; and their people have low-income levels. Most importantly, they have beautiful beaches and stunning landscapes that are threatened to disappear because of the devastation wrought by climate change.

These island states represent the more picturesque examples of threatened areas. Coastal communities throughout the globe provide fewer picture-perfect post cards but still represent highly threatened cases that deserve equal if not greater attention. Few may have ever heard of the Sunderbans in Bangladesh and India, the Jarawas in Bay of Bengal, the Inuit in the Arctic, the Cayos Miskito in Nicaragua, or the Vezo in Madagascar.⁶ Yet, climate change also threatens the lands of each of these communities.

Further, disappearing islands and threatened coastal communities make up only one slice of the many people threatened globally by natural disasters. 2008 saw 36m displaced, mostly climate related; that figure increased to 38.3m in 2010.⁷ It is estimated that the rate of natural disasters will increase dramatically over the next twenty years.⁸

International Law and State Extinction

To avoid becoming overwhelmed at the outset let us concentrate on the disappearing islands and see whether we have the conceptual tools and wherewithal to deal with their plight. Let us further confine our considerations to the challenges that disappearing nations pose to the law. A consensus has emerged that international law is not up to this challenge without radical and unlikely revisions. Of course, this is just what we should expect once we realize the global impact of ecological as opposed to environmental problems.

States lie at the center of the current political and legal international system. This system began—at least, according to the story told in every political science and law textbook—with the 1648 Treaty of Westphalia. Today, the international system is a fully entrenched system of states. There’s, practically speaking, hardly any other

actors on the international stage. With a few exceptions, the United Nations admits only states. Only states can appear before the International Court of Justice.

The 1933 Montevideo Convention gave a legal blessing to what every politician has come to recognize.⁹ States comprise the building blocks of the international system. But what is a state? Alas, Montevideo provides an answer with a fourfold criteria for creation of a state: (1) a permanent population; (2) a defined territory; (3) an effective government; and (4) international capacity. Note that to qualify as a state, neither the population nor the territory needs to be large. However, presumably, once an island has sunk, it would no longer have either a population or a territory.

We need one more legal instrument before tackling the case of the disappearing islands, namely, the United Nations Convention on the Law of the Sea (LOS). A states territory extends out into the sea: Territorial Sea (12nm), Contiguous Zone (24nm), Exclusive Economic Zone (EEZ) (200nm), and the Continental Shelf (350nm). The only one of these zones that will concern us is the EEZ, which roughly signifies how much of the seabed a state can exclusively exploit for oil, minerals, etc.

Baselines¹⁰ also will prove crucial to the analysis. The extent of each zone begins from a baseline near the shore. We should note a few things about baselines. First, they are drawn from natural sites and not from artificial structures. Second, baselines become problematic if those natural formations such as seashores change radically. Third, scattered island states have distinct advantages when it comes to drawing baselines.¹¹ Baselines for these archipelagic states are drawn around the entire perimeter of the islands.

The requirement of drawing baselines from natural and not artificial structures creates an interesting puzzle. LOS defines an island as “naturally formed” except for “rocks which cannot sustain human habitation or economic life” (Article 121). Japan has spent 29.3b yen¹² on Okinotorishima Island to qualify it as an island under LOS when this “island” consists of two barren rocks, 1400 yards apart and less than two feet above water.¹³ Compare this to Hulhumalé, a 465-acre artificial island built next to the Malé in the Maldives and capable of supporting over 150,000 people.¹⁴ As an artificial island, this would not extend the EEZ of the Maldives.¹⁵

To further dramatize and substantiate the problems facing LOS consider that islands have already disappeared. The United States and Mexico had conflicting claims over the island of Bermeja in the Gulf of Mexico, but it disappeared in 2009.¹⁶ Similarly, the disappearance of New Moore Island in the Bay of Bengal in 2010 put an end to a dispute between India and Bangladesh.¹⁷ Indeed, as one journalist wrote “New Moore, No More.”

In addition, wholesale relocations of a considerable number of island peoples have also already occurred. Inhabitants of Lohachara Island in the Bay of Bengal were moved to a nearby island in 2006.¹⁸ Papua New Guinea has relocated residents of Duke of York Island and residents from Carteret Islands to Bougainville in 2007. Finally, the Maldives has already had to evacuate the residents of Kandholhudoo Island. These relocations represent a small sample of a massive relocation problem facing the world in the future. This century South Asia¹⁹ has had 125 million migrants, with 75m of these from Bangladesh to India. 146m live less than 1 meter above sea level in South and East Asia. ¹⁵⁷

Again, it seems that international law is ill equipped to handle these looming catastrophes, especially those dislocated by them. International law does not even have an agreed upon way to classify these fleeing individuals. They do not fit the definition of a refugee as set forth in the 1951 Refugee Convention that focuses on political refugees. A number of authors have proposed new classifications: “environmental refugees”²⁰, “climate change refugees”²¹, “environmental migrants”, and “environmentally displaced persons.”²² However, the UNHCR has rejected these attempts.²³

Solutions: Ecological versus Environmental

If the ecologists are correct, no amount of tampering with legal nuances will do. Dire problems call for drastic solutions. These ecological proposals range from the mild such as cession²⁴ and immigration²⁵ to the radical, including deterritorialized states²⁶, trusteeships²⁷, and cosmopolitanism²⁸. At one point, the Maldives entered into negotiations with India to have it cede territory. Cession may have been plausible when, in the 1870s, Canada ceded territory to Icelanders in Manitoba²⁹, but with the increasing scarcity of territory, cession does not provide a likely option. States are stingy with their territory and often restrictive with their immigration policies. New Zealand has agreed to admit 75 Tuvaluans per year. At that rate, it will take centuries for Tuvalu’s 11,000 people to immigrate.

The idea of a deterritorialized state challenges the core of the Montevideo criteria. Its proponents distinguish between the four criteria needed to create a state and criteria needed to extinguish a state. So, even without a territory, the Maldives and Tuvalu could still continue as states. They cite the Knights of Malta and the Papal See (1870-1929) as precedent cases of recognized states that have no territory. Yet, these examples are highly idiosyncratic. The League of Nations had a mandate system, and the United Nations, a trusteeship system set forth in Chapter XII of the Charter. Finally, some versions of cosmopolitanism attack the very idea of a nation state.

Whatever the lure of these ecological proposals, an environmental approach offers a more pragmatic solution. The Exclusive Economic zones hold the key. Compare the EEZs of the following states:

| EXCLUSIVE ECONOMIC ZONE | |
|-------------------------|-----------------|
| State | km ² |
| United States | 11,351,000 |
| Japan | 4,479,388 |
| Kiribati | 3,441,810 |
| Marshall | 1,990,530 |
| Maldives | 923,322 |
| China | 879,666 |
| Tuvalu | 749,790 |

A simple diagram can reveal a great deal. Note that the United States has the most extensive EEZ partly because of the islands it controls.³⁰ Japan pales in comparison to the US but has nearly five times the EEZ as China. China’s relatively paltry EEZ

may help explain its assertive claims to many disputed islands, which, if successfully resolved in China's favor, would triple its EEZ. However, most importantly for the purposes of this analysis, note the comparative large EEZs of the small disappearing island states. Kiribati has nearly the same size EEZ as Japan and nearly four times the EEZ size of China, which, in turn, has about the same size EEZ as the Maldives and Tuvalu. The economic potential of this is enormous.

An EEZ gives a state, within those boundaries, rights of exploitation over all natural resources (fish, etc.), nonliving resources (oil, gas, diamonds, etc.) as well as potential development rights of energy sources such as wind. In short, the disappearing states, despite the poverty of their people, have enormous potential sources of wealth within their EEZs. They may not have the wherewithal to exploit these resources themselves, but the EEZ gives them an incredibly powerful bargaining tool. They could sell exploitation rights to various sections of their EEZs to the highest bidders. Proceeds from these sales could then be used to relocate their peoples to, perhaps, any country of their choosing. Economic well-being would make attempts to carve out new categories of refugees an idle exercise indeed.

This solution, however, could only take place if the increasingly ambulatory baselines of the disappearing island states become frozen at their current levels.³¹ Freezing baselines does not have the pinache of ending global warming. It represents a comparatively simple, piecemeal, that is, environmental, proposal. Yet, the consequences of amending LOS to do this would be enormous and widespread. For one thing, it would begin to address not only the plight of those living on the disappearing islands but also it could serve as a platform for strengthening those coastal communities threatened with extinction.

The institutional mechanisms for carrying out these negotiations already exist in the form of regional organizations. For example, the Small Island Developing States (SIDS) already has strength in numbers with some forty-member states. The South Asian Association for Regional Cooperation and the Pacific Island Forum Secretariat also could serve as representatives. Similarly, coastal communities could use the Integrated Coastal Management Law (ICZM) to form an organization.³²

The ecological approach, cited at the outset, relies on a highly misleading analogy. Pollution is not to climate change as gang violence is to nuclear war. Climate change problems are no more or no less amenable to solution than pollution problems are. They both require nothing less than the mobilization of the political will needed to solve them. We should resist hyperbolic analogies. The international community, greatly to its detriment, has bought into seeing terrorism as like nuclear war when a saner view would see it more as a form of gang violence. The international community should not make the same mistake with climate change that it made with terrorism.

Conclusion

Let us return to the analogy that began this essay, namely, the canaries in the coalmine, and end on an improbably academic note, namely, with a song.

Canary In A Coalmine

-----*Sting & Police*

First to fall over when the atmosphere is less than perfect
Your sensibilities are shaken by the slightest defect
You live your life like a canary in a coalmine
You get so dizzy even walking in a straight line

You say you want to spend the winter in Firenze
You're so afraid to catch a dose of influenza
You live your life like a canary in a coalmine
You get so dizzy even walking in a straight line

Canary in a coalmine
Canary in a coalmine
Canary in a coalmine

Now if I tell you that you suffer from delusions
You pay your analyst to reach the same conclusions
You live your life like a canary in a coalmine
You get so dizzy even walking in a straight line

Canary in a coalmine
Canary in a coalmine
Canary in a coalmine

First to fall over when the atmosphere is less than perfect
Your sensibilities are shaken by the slightest defect
You live your life like a canary in a coalmine
You get so dizzy even walking in a straight line

Canary in a coalmine
Canary in a coalmine
Canary in a coalmine
Canary in a coalmine
Canary in a coalmine
Canary in a coalmine³³

The canary does not serve as an early warning signal of impending catastrophe. Rather, it serves as a warning sign about us. Too often we react meekly to hyperbolic fear when our “sensibilities are shaken by the slightest defect.” The canaries should help us realize that caring for our selves and our habitats is not a glamorous but an arduous task. We are the canaries---not a fragile and delicate canary—but resilient and resourceful canaries.

¹ Daron Acemoglu and James Robinson, *Why Nations Fail: The Origins of Power, Prosperity, and Power* (New York: Crown, 2012). The authors are an MIT economist and a Harvard political scientist, respectively. Ironically, the book has been nominated for the 2012 Goldman Sachs Business Book of the Year Award.

² “From Underwater, Maldives Sends Warning on Climate Change,”

CNNWorld (Oct. 17, 2009).

³ Ted Nordhaus and Michael Shellenberger, “From the Death of Environmentalism to the Politics of Possibility,” 8 *Breakthrough Journal* (2007).

⁴ Michael Gagain, “Climate Change, Sea Level Rise, and Artificial Islands: Saving the Maldives’ Statehood and Maritime Claims Through the ‘Constitution of the Oceans,’” 23 *Colo. J. Int’l Envtl L & Policy* 77 (2012).

⁵ Rosemary Rayfuse, “W(h)ither Tuvalu? International Law and Disappearing States,” (Univ. of N.S.W. Faculty of Law Research Series, Working Paper No. 9, 2009).

⁶ Tony George Puthucherril, “Change, Sea Level Rise and Protecting Displace Coastal Communities: Possible Solutions,” <http://ssrn.com/abstract=2255225> at 2.

⁷ Monitoring Disaster Displacement in the Context of Climate Change: Findings of a Study by the United Nations Office for the Coordination of Humanitarian Affairs and Internal Displacement Monitoring Centre (Switzerland, United Nations Office for Coordination of Humanitarian Affairs, 2009).

⁸ Vikram Kolmannskog, “Climate of Displacement, Climate for Protection?”

Norwegian Refugee Council, DIIS Brief (10 Dec 2008).

⁹ Montevideo Convention on the Rights and Duties of States, Article 1, Dec. 26, 1933, 165 L.N.T.S. 19 [hereinafter Montevideo Convention].

¹⁰ D. Caron, “When the Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level,” 17 *Ecology Law Quarterly* (1990): 621; Rosemary Rayfuse, “International Law and Disappearing States: Utilising Maritime Entitlements to Overcome the Statehood Dilemma,” in University of New South Wales Faculty of Law Research Series (Univ. of New South Wales, Paper No. 52, 2010) at 6; Maxine Burkett, *The Nation Ex-situ: On Climate Change, Deterritorialized Nationhood and the Post-Climate Era*, 2 *Climate Law* (2011): 345-74 at 362.

¹¹ The Maldives has over twenty atolls and 1,190 islands. U.N. Office for Ocean Affairs & The Law of the Sea, *The Law of the Sea: Baselines*, at 50, U.N. Sales No. E.88. V. 5(1989). “Introduction,” Permanent Mission of the Republic of the Maldives to the United Nations Office at Geneva. *Maldives: An Overview*, S. Asia Reg’l Initiative for Energy.

¹² Yoshikawa, Y. “The US-Japan-China Mistrust Spiral and Okinotorishima,” *The Asian Pacific Journal* (2007).

¹³ Jonathan Charney, “Rocks that Cannot Sustain Human Habitation,” 93:4 *The American Journal of International Law* (1999) 863-878.

¹⁴ Koji Fujima, et al, Preliminary Report on the Survey Results of 26/12/2004 Indian Ocean Tsunami in the Maldives 82 (2005).

¹⁵ See Gagain, footnote 4, (proposing a new rule of LOSC “to give effect to artificial island statehood” at 82).

¹⁶ Cleo Paskal, “Strange Case of Disappearing Island,” *The New Zealand Herald* (April 3, 2010).

¹⁷ Shiv Sahay Singh, “New Moore, No More: Rising Sea Claims Island in Bay of Bengal,” *The Times of India* (March 25, 2010).

¹⁸ G. Lean, "Disappearing World: Global Warming Claims Tropical Island," *The Independent* (December 24, 2006).

¹⁹ Tony George Puthucherril, "Adapting to Climate Change and Accelerated Sea-Level Rise through Integrated Coastal Zone Management Laws: A Study of the South Asian Experience" in Aldo Chirop et al eds., *26 Ocean Yearbook* (Leiden: The Netherlands, 2012).

²⁰ Silke Marie Christiansen, *Environmental Refugees: A Legal Perspective* (Nijmegen: Wolf Legal Publishers, 2010).

²¹ Tiffany TV Duong, "When Islands Drown: The Plight of 'Climate Change Refugees' and Recourse to International Human Rights Law," *31 U Pa J Int'l L* (2010): 1239 at 1250.

²² The Nansen Conference: Climate Change and Displacement in the 21st Century, Oslo, Norway, June 5-7, 2011 (Norwegian Refugee Council, 2011) at 19.

²³ UNHCR Climate Change, Natural Disasters and Human Displacement: A UNHCR Perspective, [nd] at 8-9.

²⁴ Alfred H. A. Soons, "The Effect of a Rising Sea Level on Maritime Limits and Boundaries," *37:2 Netherlands International Law Review* (1990): 207-32 at 230.

²⁵ Ministry of Pacific Islands Affairs, *New Immigration Category for Pacific Migrants* (2002).

²⁶ Ruth Wedgewood, "Cyber-Nations," *88 Kentucky Law Journal* 957-965 (1999-2000).

²⁷ Henry H. Perritt, Jr., "Structures and Standards for Political Trusteeship," *8 UCLA J. Int'l L. & For. Aff.* (2003): 385.

²⁸ Michele A. McKinley, "Conviviality, Cosmopolitan Citizenship, and Hospitality," *5 Unbound* 55 (2009). Carol Farbkoto, "Wishful Sinking: Disappearing Islands, Climate Refugees, and Cosmopolitan Experimentation," *51:1 Asia Pacific Viewpoint* (2010): 47-60.

²⁹ W. Kristijansson, *The Icelandic People in Manitoba* (Winnipeg, 1965).

³⁰ The east and west coasts of the US only make up less than one-third of the total with the addition of Alaska raising that to nearly one-half of the total. This means that over one-half of the total comes from island possessions.

³¹ David D. Caron, "When Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level," *17 Ecology L.Q.* 621 (1991). Caron was the first to propose freezing baselines.

³² Cormac Cullian, *Integrated Coastal Management Law: Establishing and Strengthening National Legal Frameworks for Integrated Coastal Management*, FAO Legislative Study, No. 93 (Rome: FAO of the United Nations, 2006).

³³ Source: <http://www.sing365.com>.

Analysis Cost of Transportation of Fresh Cassava roots in SaKaeo Province

Jakaphan Pinthong ^{*1}, Wipanan Iaprasert ^{*2}, Chongsin Sookoomjariyapong ^{*2}

^{*1}Rajabhat Rajanagarindra University, Thailand, ^{*2}Vongchavalitkul University, Thailand

0250

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Abstract

This study was aimed to analyze the cost of transportation of cassava roots in Sa Kaeo province and developed guidelines to reduce the cost of transportation from farm to factory. It was found that cassavas were grown in nine districts of Sa Kaeo province in a total of 658,380 rai of land, where there were two factories that produced cassava starch. There were 36 private own purchasing sites available in Sa Kaeo province. It was found that 5.58 % of the cassava roots were bought at the farm by the middlemen, while 26.14 % were sold to the middlemen at those 36 purchasing sites and 68.28 % were sold to the flour mill plants. The types of vehicle that often used to transport the cassava roots were consisted of 63.45 % four-wheel trucks, 21.57 % six-wheel trucks, where 14.97 % were ten-wheel trucks. The average distances required for the transportation of cassava roots to the purchasing sites were in a range of 11 - 20 kilometers, where it was varied from 0.5 -10 km, 21-30 km, and 31-40 km, respectively. It was recommended that several purchasing sites should be available for the farmer in order to reduce of transportation costs. The recommended purchasing sites should be available at the several districts, i.e., Khao Chakan, Wang Nam Yen, Khlong Hat, Ta Phraya, Khok Sung, and Wang Sombun district, respectively.

Keywords: Cassava, logistic system, and cost.

INTRODUCTION

Thailand is the third largest producer of cassava in the world after Nigeria and Brazil. The production is 26 million tons per year, while the whole cassava production in the world is 228.14 million tons per year. Thailand is the world's No.1 exporter of cassava products and earns over 1,400 million USD per year because domestic consumption is less than competitors^[1]. All parts of cassava are useful and they have been used as several constituents for household consumption, i.e., an ingredient in human foods and animal feeds, a component in a process of various products for creatures, as a modified starch industry, and used as raw materials in several industries, i.e., alcohol industry, and medicine industry. The utilization of cassava can be divided into three ways, i.e., Unprocessed raw cassava (directly consumption), processed products, i.e., cassava stick, cassava pellet, and cassava starch, and modified starch in which physical and chemical forms are used in various industries^[2]. Modified starch is used in various industries including food, sweeteners, seasoning powder, textile, paper, ethanol, and biodegradable packaging. Thailand exports several cassava products, such as cassava stick, cassava pellet, and cassava starch. The large markets of cassava stick are Korea and China, while cassava pellet is exported to European Union (EU) including Netherland, Spain, Portugal, Germany, and China. Thailand is also ranked as the world's No.1 exporter of cassava starch to over 90 countries around the world. The production of cassava starch is more than 2 million tons per year, which is equivalent to nearly half of the total export of cassava products. The main markets of Cassava starch are United States of America, Taiwan, Japan, Malaysia, China, and Hong Kong^[3]. Cassava is ranked the fifth of important food crops after wheat, rice, corn, and potato in the world. It also is an important food crop in tropical countries particularly in Africa and South America^[4], while cassava is more consumed In Asia, Indonesia and India, where 60 % of annual amount of the production is used for human food, 27.5 % and 12.5 % of annual amounts of productions are used for animal feed, and other active ingredients, respectively^[5]. Cassava is considered as an energy crop as sugar cane and oil palms. Fresh cassava roots are processed into cassava starch, cassava stick and cassava pellets approximately 21 million tons per year^[6]. Cassava is used as one of alternative fuels. Fresh cassava roots are used to produce ethanol. The ethanol form of the production will be combined with gasoline to create a type of fuel known as "gasohol". At present, the government has launched a policy to promote the using of gasohol, which is made from fresh cassava roots by approving 24 ethanol plants with a total capacity of 5 million gallons per day, while 6 million tons of fresh cassava roots is added per year for the increase of ethanol plants where an area of producing cassava in the country is limited, which is only 6.5 million Rai available for the cassava plantation. The method of increasing productivity is to increase amount of productivity per Rai and to extend the production base to neighboring countries. This method will help famers increase cassava roots to support the production of ethanol^[7]. The transportation of cassava roots to factories is one of significant activities in a production process. In general, both farmers and factories are preferred to use a truck for transportation because of its movability and capacity. Trucks can transport cassava roots from cassava production areas to factories directly. A success of Cassava cultivation is depended on its harvest and transportation is essential. If the carry does not effective and suitable, all treatment and care before harvest is fruitless. The transportation of cassava, which is inefficient, will delay the delivery of products to factories. As a result, farmers will get less money because cassava is left in the fields for long period of time. Cassava should be delivered to the plant immediately after it is uprooted from the soil. If cassava is left in the field, its live-cells will use starch for breathing and other microorganisms will also use the starch in its root. Cassava roots will be rotten within 2 days. Starch in cassava roots is approximately 23.01 % right after digging, and the starch will not be decayed in 2 days

(23.7%), but about 1.62% of fresh cassava part will start to rot. The amount of starch will be decayed to 20.07, 13.13, and 9.94 percent, respectively, after 4, 6, and 8 days. It has been shown that In just 6 days after digging, starch is reduced 10 percent (from 23.01% to 13.13%), and in 8 days after digging, starch is reduced 14 percent (from 1.23% to 9.94%). The amount of deterioration of cassava root is quite significant during the delay in transportation. In addition, the deterioration rate of cassava roots will be increased with longer storage periods^[8]. The type of transport or transportation modal will be affected by the transportation cost. The study of transport types in order to improve the cassava transportation is an important method to reduce costs of delivery and production.

Logistics and costs

Logistics is the management of the flow of resources between the point of origin and the point of consumption or storage of raw materials, machine, spare part, equipment, merchandise, and related information in order to respond customers' needs both at domestic and oversea levels, where its total cost is lower for the domestic one. The supply chain management is focused on the cooperation, data sharing, and joint planning with supply chain partners. The determination of the supply chain management is carried out in order to minimize the calamity and to achieve greater efficiency. Principles of logistics and supply chain management consist of two major parts, i.e., one is consideration of total cost without sub optimization because it may affect other parts of the supply chain, and the second part is to evaluate profit and loss of each alternative in terms of financial, non-financial, and risk, which are decided to the right choice of a situation^[9]. The Council of Logistics Management (CLM) has set up the definitions of logistics as follows:

Logistics is the process of planning, operating, control of movement for delivery products and return, storage products, services, and related information more efficiently and effectively. The logistics will take place from the beginning of production to the last consumption, which is the requirement for customers.

The logistics process will cover two activities, i.e., the first activity, which is key activities that include inventory management, transportation management, ordering management, data management, and financial management; the second activity, which is supporting activities that include warehouse management, storage management, procurement management, packaging management, and demand management.

The key activities of logistics are dealing with supply goods or services, which meet the needs of customers, and deliver products to the places on time where customers require the punctuality. The products should reach customers in perfect conditions with reasonable cost^[10].

Costs is expenses for procuring

Products or services:

The scopes of costs are - collection cost, selection, allocation cost depending on wishes of the management department.^[11] If we can control the costs incurred in a business to be low, it may help to increase profits because it is easier than increasing its revenue.

Objectives and scopes

The study was aimed to determine cost of the transportation of fresh cassava roots from farmers to cassava starch factories in Sa Kaeo province, and to develop guideline for the reduction of transport costs from the farm to cassava starch factories.

The scope of this study was focused on the type of transportation of fresh cassava roots in Sa Kaeo province to and from cassava starch factories and analyze the time courses of transportation. The study was carried out from March to July 2011.

RESEARCH METHODOLOGY

Two demographic groups used in the studies were selected from two companies of cassava starch factories; while cassava farmers were selected from farmers lived in Sa Kaeo province. The participants were randomly selected from cassava farmers in Sa Kaeo province by using Taro Yamane table with 95 % of confidence, where a total of 394 farmers were selected from nine districts, i.e., 65 persons from Mueang Sa Kaew, 43 persons from Khlong Hat, 47 persons from Ta Phraya, 43 persons from Wang Nam Yen, 66 persons from Watthana Nakhon, 26 Aranyaprathet, 44 persons from Khao Chakan, 10 persons from Khok Sung, and 50 persons from Wang Sombun.

Data were collected using directly interviewing and questionnaire survey. Data used in questionnaire were consisted of transportation process of fresh cassava roots to cassava starch factories, transportation route from farms to factories, and the specific questionnaire for managers of cassava starch factories.

RESULTS

Types of cassava transportation

According to the questionnaire used for 394 farmers in nine districts of Sa Kaeo province, it was dealing with the types of vehicles used for transportation of cassava roots from farms to the purchasing sites. Results of an analysis showed that farmers were able to carry cassava roots to purchasing sites. Those farmers who had no vehicle transported the cassava roots by hiring a truck. If the planting areas were far from cassava starch factories, the demand of hiring trucks would be increased. Farmers who owned a vehicle could choose the appropriate time to transport the products and could control the quality of the products. Table 1 shows the type of vehicles used for the transportation.

Table 1. Types of vehicles used for the transportation.

| Districts | Types of vehicles | | | Totals |
|-----------------|-------------------|---------------|----------------|--------|
| | 4-wheel Truck | 6-wheel Truck | 10-wheel Truck | |
| Mueang Sa Kaeo | 35 | 16 | 14 | 65 |
| Khlong Hat | 30 | 8 | 5 | 43 |
| Ta Phraya | 37 | 6 | 4 | 47 |
| Wang Nam Yen | 28 | 10 | 5 | 43 |
| Watthana Nakhon | 40 | 9 | 17 | 66 |
| Aranyaprathet | 17 | 5 | 4 | 26 |
| Khao Chakan | 25 | 13 | 6 | 44 |
| Khok Sung | 6 | 3 | 1 | 10 |
| Wang Sombun | 32 | 15 | 3 | 50 |
| Total | 250 | 85 | 59 | 394 |
| Percentages | 63.45 | 21.57 | 14.97 | 100 |

Results in Table 1 showed the relationship between cassava farmers in Sa Kaeo province and types of vehicles used for the transportation of cassava roots. It was found that 250 farmers used 4-wheel trucks (63.45 %), 85 farmers used 6-wheel trucks (21.57 %). 59 farmers used 10-wheel trucks (14.97 %), whereas there was no one used a tractor for the transportation. The sequences of the most frequent way of transportation of cassava roots in Sa Kaeo province were 4-wheel trucks, 6-wheel trucks, and 10-wheel trucks respectively.

Table 2. The capacity of transportation (Weight) of cassava roots per trip.

| Districts | Average load (tons). | | |
|-----------------|----------------------|----------------|-----------------|
| | 4-wheel Truck | 6-wheel Trucks | 10-wheel Trucks |
| Mueang Sa Kaeo | 2.16 | 5.66 | 9.00 |
| Khlong Hat | 1.75 | 5.71 | 9.20 |
| Ta Phraya | 1.77 | 5.00 | 10.15 |
| Wang Nam Yen | 2.26 | 6.12 | 8.00 |
| Watthana Nakhon | 2.55 | 6.10 | 14.33 |
| Aranyaprathet | 2.13 | 7.33 | 13.12 |
| Khao Chakan | 2.16 | 6.20 | 9.14 |
| Khok Sung | 1.86 | 7.12 | 15.35 |
| Wang Sombun | 2.16 | 7.65 | 13.45 |
| Total | 18.14 | 56.39 | 92.60 |
| Averages | 2.01 | 6.26 | 10.28 |

It was found that the average weight, which carried by 4-wheel trucks, was 2.01 tons, while 6-wheel trucks could carry 6.26 tons, and 10-wheel trucks could carry 10.28 tons.

Table 3. The distance of the transportation from the plantation sites to the purchasing sites.

| Districts | Transportation distance (km.) | | | |
|-----------------|-------------------------------|-------|-------|-------|
| | 1-10 | 11-20 | 21-30 | 31-40 |
| Mueang Sa Kaeo | 35 | 42 | 31 | 2 |
| Khlong Hat | 19 | 22 | 13 | 8 |
| Ta Phraya | 12 | 19 | 11 | - |
| Wang Nam Yen | 15 | 23 | 3 | - |
| Watthana Nakhon | 25 | 29 | 11 | - |
| Aranyaprathet | 15 | 17 | 1 | - |
| Khao Chakan | 21 | 27 | 6 | 3 |
| Khok Sung | 3 | 7 | 5 | 1 |
| Wang Sombun | 18 | 19 | 5 | 1 |
| Total | 148 | 205 | 86 | 15 |

Results in Table 3 show that the carry distance of fresh cassava roots from the farm to the purchasing site was in a range of 11 - 20 km, 0 - 10 km, 21 - 30 km, and 31-40 km, respectively.

Planning design for reducing the transportation cost of fresh cassava roots.

The analysis of the data showed that the least frequent way for the transportation of farmers to carry fresh cassava roots was 4-wheel trucks due to its efficiency. There was no purchasing site available in some districts, so farmers had to transport the products for a long distance to the purchasing site. Researchers would like to recommend that there is a need to have a central place for collecting and distributing products.

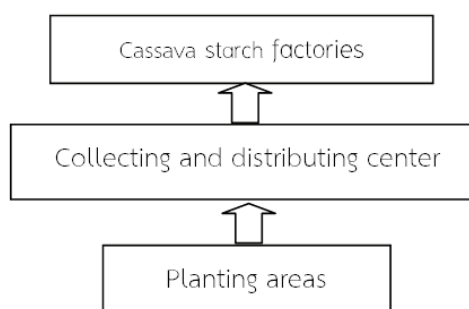


Figure 1. Showing the modes of transportation.

Table 4. The ratio between old cost / new cost of transportation from farms to Cassava starch factories.

| Districts | Average cost (Baht) | | | | | |
|-----------------|---------------------|-------|----------------|-------|-----------------|-------|
| | 4-wheel trucks | | 6-wheel trucks | | 10-wheel trucks | |
| | Before | After | Before | After | Before | After |
| Mueang Sa Kaeo | 6 | - | 29 | - | 90 | - |
| Khlong Hat | 35 | 17 | 183 | 92 | 644 | 322 |
| Ta Phraya | 24 | 12 | 116 | 58 | 600 | 300 |
| Wang Nam Yen | 38 | 19 | 165 | 82 | 456 | 228 |
| Watthana Nakhon | 7 | - | 29 | - | 206 | - |
| Aranyaprathet | 6 | - | 33 | - | - | - |
| Khao Chakan | 25 | 12 | 110 | 55 | 300 | 150 |
| Khok Sung | 30 | 15 | 100 | 50 | 920 | 460 |
| Wang Sombun | 40 | 20 | 260 | 133 | 988 | 494 |

CONCLUSION AND RECOMMENDATION

Results indicated that cassava roots were grown in nine districts of Sa Kaeo province in a total area of 658,380 Rai, where there were two factories produced cassava starch. There were 36 private own purchasing sites available in Sa Kaeo province. It was found that 5.58 % of the cassava roots were bought at the plantation sites by the middlemen, while 26.14 % were transported to sell to the middlemen at those 36 purchasing sites, and 68.28 % of the products were sold to the flourmill plants. The types of vehicle that often used to transport the cassava roots were consisted of 63.45 % four-wheel trucks, 21.57 % six-wheel trucks, whereas 14.97 % were ten-wheel trucks. The average distances required for the transportation of cassava roots to the purchasing sites were in a range of 11 - 20 kilometers, which was varied from 0.5 -10 km, 21-30 km, and 31-40 km, respectively. It was recommended that several purchasing sites should be available in several districts for farmers in order to reduce the transportation costs, i.e., Khao Chakan, Wang Nam Yen, Khlong Hat, Ta Phraya, Khok Sung, and Wang Sombun, respectively.

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*The Model Development for Integrated Community Welfare Fund Network in the
District Level: A Case Study of District in Thailand*

Kunwadee Rojpaisarnkit

Rajabhat Rajanagarindra University, Thailand

0272

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Abstract

This research was the participatory action research. The objectives were to collect the information about community welfare fund and situations of the disadvantages in the community, and to develop the model for integrated appropriate community welfare fund network with the local context according to social capitals and competencies. The study area covers 11 sub-district areas in Panomsarakam District, Chachoeongsao Province, Thailand. The duration of the study was from March to December 2009. The study's implementation was done by set up meeting for brain-storming of key persons in sub-district and district. The objective of sub-district meeting was done for explored the disadvantages in each sub-district and set the guidelines for helping them. Through the district level meeting was done for setting the community welfare fund network's committee that were 2 peoples from each sub-district. The results if this study found 1) There were 2 models for implement; which were the in cash and in kind helping, 2) Community welfare fund management used the community self help group model; such as people sector, rich man, key persons in the community, NGOs, experts from universities, local government sector, etc. The model of the integrated community welfare fund network was the output of participatory action of all sectors. For the future activities might be got some problems; for example: lack of continuous support to strengthen the action process of the community welfare fund network, such as money, man, materials, etc. Moreover, the working system of the network is the important issue that should be considered.

Key word: Community welfare fund, Network

Introduction

This article as the past of the research was named “The Model Development for Integrated Community Welfare Fund Network of Amphoe Panomsarakam” that was the participatory action research. Because measuring social welfare through gross domestic product (GDP), the activities for improve social welfare for all people is very important.

At present, the Ministry of Social Development and Human Society is working out the second strategic plan on social welfare for Thai society to make Thailand a “welfare society” by the year 2016. The target of this strategic plan has been set for the national welfare system to cover all groups of Thai people and seeks to empower society and expand the country’s social security system to cover all groups of Thai people, especially those in the non-formal sector. It will also develop the quality of social security services, mobilize funds for social services.

Objective

The objectives of this study were;

1. to collect the information about community welfare fund and situation of the disadvantages in the area of the study,
2. to develop model of the integrated community welfare fund network as appropriate with local context, and
3. to implement the participatory action for helping the disadvantages according to social capital of their communities.

Study area

The study area covers 8 tambons that includes: Koh Kanun, Nong You, Nong Nae, Panomsarakam, Ta Than, Mueang Kao, Kao Hin Son; and 3 municipal areas that includes: Koh Kanun, Panomsarakam, Kao Hin Son; in Amphoe Panomsarakam, Chacheongsao Province.

Duration of study

The first implementation of this study was between March to December 2007, and the activities also performed continuously until now.

Samples

The 419 samples were separated into 3 groups; 1) 305 peoples as the head or secretary of fiscal fund, social fund, career fund, and community enterprise fund; 2) 106 peoples as the community leader and the representatives from related government sectors which were 8 from local administration office, 8 tambons headman, 87 villages headman, and 3 representatives from municipal offices; and 3) 8 key man of community welfare fund at the tambon level.

Research methodology

The situations review of the disadvantages in the community; start by meeting with key participant in the tambon level for set up the definition of “the disadvantages” according to community’ context by all participants’ opinion. Next, the representatives go to survey the number of all disadvantages in the community. And brainstorming for develop model of the integrated community welfare fund network as appropriate with local context, and do the participatory action with key persons and stakeholders for helping the disadvantages according to social capital and social competency.

Results

The result found 3,794 disadvantages included 2,669 who received some help and 1,125 who not received that were 507 old age peoples, 39 disability peoples, 127 disadvantages child, and 31 poor social accessibility peoples. After that the representatives of each tambon go to find out the disadvantages that should be received the urgent help as the example cases. In order to the consideration of the network's committee, theirs were 7 disadvantages as the first group for help.

The study for model development started by collect data of community groups in Amphoe Panomsaraka. It found 305 groups in 4 types: 1) 133 fiscal funds, 54 career/ community enterprise funds, 117 social funds, and 1 local wisdom fund. And found the fiscal funds had the highest gross working capital, followed by the social funds.

The model development of community welfare fund network done by set the meeting for brain-storming in the level of tambon and amphoe. The tambon level meeting done for explored the disadvantages in each tambon and set the guidelines for helping them. The amphoe level meeting done for seeking the committee of the community welfare fund network that the 2 peoples from each tambon, and they set the rules and working guidelines.

The results of this study were: 1) Using the representatives from each tambon is the basis of work, 2) There 2 model for implement; which were the in cash and in kind helping, 3) Community welfare fund management use the community self help group model; such as people sector, rich man, community key man, NGOs, that support by Ministry of social development and human security, experts from universities, local government sector, etc. The model of integrated the community welfare fund network that occurred was the results of participatory action of all sectors. As a whole, it found that head of community welfare fund; key person in the community; representative of the government sector; representative of the people sector, agree with the beneficial of the activities for integrated community power and developed community welfare fund network. But for the future activities, it's may be got some problems; for example: lack of continuous support to strengthen the action process of community welfare fund network, such as money, man, etc. Moreover, the working system of the network is the important issue that should be considered.

And how the participatory activities of the community welfare fund network would be variety of forms and methods which included issues that make people get a good quality of life and well-being; such as fund, generosity, nature rehabilitation, etc. The assistance and relief is the issue which is concerned to the way of life from birth to dead; which is matching to the culture, local intelligence by using extensively the religion principle and the people participation. And how the outcome from community welfare fund network management will cause the income and decrease the expenditure and create good relationship among the community people which finally leads to reduce poverty of people. It is congruence with core concept of community welfare management, which is self dependency and living together of the people; that is the "valuable giving and honorable receiving".

Discussion

The activities should be done in future are; to strengthen the agreement of community welfare fund's member to provide some benefit from their fund to support the community welfare fund network management, which is the holistic network integrated, both in cash and in kind support; to promote activities of the network to public for increase the member of

network and money donation for activities; and to keep the continuous cooperation with local government sector.

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*Developing Effective Government Responses to Climate Change: The Case of
Australia*

Gürol Baba

Canakkale Onsekiz Mart University, Turkey

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Abstract

The international awareness and emphasis on global climate change has put pressure on national governments to prepare action plans to counter its impacts. The imperative to act as quickly as possible is an added strain on governments, which seek effective and timely responses to this complex problem. Yet the multiplicity of actors, particularly at the local level, and interests at stake cause complications to formulate and implement effective policies to mitigate or adapt to climate change. In order to alleviate such complexity, adaptive governance could be a solution for environmental issues. Yet it is still experimental and prone to failure in larger scale policy implementations.

This research examined Australia in terms of both the climate policy-making complexities and a test ground for adaptive governance. Despite in recent years creating a specialized Department of Climate Change, formulating the National Climate Adaptation Framework, initiating its Local Adaptation Pathways Programme and passing a controversial carbon tax, one cannot speak of a coherent (sustainable and /or effective) national response to climate change in Australia. Firstly, complexities created by the plurality of climate change actors in Australia exacerbate seemingly irreconcilable differences in perspective. Secondly, the structural, procedural and contextual limitations of Australian institutional governance structures complicate the implementation of effective adaptive governance for climate change response plans. Australia as an example shows that without building a sufficient consensus between different climate change actors about the need to act, without awareness of the structural and procedural deficiencies of local governance, and the importance of building up a flexibility of understanding among the local and national actors for policy making, it is very difficult to develop a comprehensive, effective, and sustainable climate change policy.

Many solutions could be offered to ease this complexity and utilize a better functioning adaptive governance at the national level but this research argues that one solution could also be building up a filter (council or committee) that would operate between the local and national/federal levels of governance. It would act as a system of checks and balances and be responsible for what is included and excluded from policies and who is responsible and accountable for their implementation. Such an idea could help the local and national/federal levels of government to have a better understanding of cooperative policy making and its bureaucratic implementation.

Key words: climate change, mitigation, adaptation, adaptive governance, Australia, carbon tax

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Rising of Awareness on Climate Change: Parameters of National Governments' Responses

The definition of the UN-led Intergovernmental Panel on Climate Change (IPCC)¹ refers to climate change as a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persist for an extended period, typically decades or longer. Climate change, more practically, is an accumulated result of widespread and persistent use and abuse of the environment; in particular the unawareness of the mass production methods and approaches of the last couple of centuries about their impacts on environmental degradation.

The global agenda has begun to focus on the issue in the last two decades. It started firstly with a scientific focus by the IPCC in 1988. In 1992 there was another UN effort called the UN Framework Convention on Climate Change (UNFCCC)² which was signed by almost every country and which contributed to reducing the emission level of green house gasses. In 1997 the Kyoto Protocol to the UN Framework Convention on Climate Change³, aimed to build up a global regulation to secure binding commitments to reduce green house gas emissions.

In the last decade two more reports were released on environmental degradation: the Fourth Assessment Report of the IPCC in 2007 and the Stern Review 2007.⁴ They defined global warming and made projections about its prospective impacts on water resources, natural disasters, marine and terrestrial ecosystems, human health and agriculture.

Two main policy responses have been discussed for dealing with the effects of climate change on the national scale: mitigation and adaptation. The former is the set of measures to reduce the emission level and strengthen the absorption of green house gases and the latter is the set of measures to increase preparedness for the negative effects of climate change, to alter its effects and adapt to it.⁵ Yet these two should not be taken as mutually exclusive means; they complement each other, particularly in terms of their long-term consequences. Mitigation aims to reduce the effects of factors that create climate change and adaptation aims to stabilize this in the next few decades.

Both mitigation and adaptation are national policy mechanisms but regardless of the international awareness, they have not yet become fully effective. In other words, there is serious amount of analyses in academia⁶ about the reasons and also the short

¹ For the details of the IPCC process see: <http://www.ipcc.ch/>

² For the details see: <http://unfccc.int/2860.php>

³ For the full text of the Kyoto Protocol see: http://unfccc.int/essential_background/kyoto_protocol/items/1678.php, accessed on 19 May 2013.

⁴ For the full text of the Report see: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf, accessed on 19 May 2013; for the full text of the review see: http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/stern_review_report.htm, accessed on 19 May 2013.

⁵ A. Sumi, K. Fukushi, A. Hiramatsu (eds.), *Adaptation and Mitigation Strategies for Climate Change*, (Tokyo: Springer, 2010), 131, 134.

⁶ N. Stern, *Stern Review: The Economics of Climate Change*, (UK Treasury: London, 2006), <http://www.sternreview.org.uk>; Intergovernmental Panel on Climate Change, *Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, (Cambridge University Press: Cambridge, 2007); R. Garnaut, *The Garnaut Climate Change Review: Draft Report*, June 2008, <http://www.garnautreview.org.au>.

and the long-term consequences of climate change but still there is a serious gap between these analyses and the institutional actions.

The main reason for this gap can be found in the requirements for building up and implementing climate change policies. One of the major requirements of these policies is to be integrative within and across the different levels of public and private governance. That means public governance should 'accommodate various stakeholders and manage associated principal-agent relationships as astutely as possible'⁷ and construct an integrated policy implementation mechanism. The other requirement is that these policies should be resilient (ie. adaptive and responsive) to changes in the environmental protection demands. Effective coordination is important among public and private governance actors vertically and horizontally via communication. Coordination should be maintained via interrelation of activities which creates synchronization between the public and the private spheres. The last requirement is the interlocking acceptance and consent by all actors of each other's power (mutual authority and legitimacy), which makes each domain subject to the checks and balances of the other. Given the complexity in creating the above-mentioned environment for climate change policy implementation schemes, the gap between the scientific analyses and policy responses of climate change is difficult to eliminate.

These requirements of cooperation schemes refer to the national actors. This is not enough for constructing solutions to a global problem. The effects of climate change cannot be mitigated piecemeal by a few countries. A new outlook is required for climate change solutions, which adopts a comprehensive and holistic approach for identifying and classifying problems, for achieve sustainable solutions. One important path is to build up a new vertical cooperation scheme, focusing on the structural and contextual features of environmental policies, to move between the national to global spheres.

Vertical Cooperation Schemes on Climate Change: from National to Global

The success of national/global climate change policies relies on the efficient cooperation between national and global institutions. Since institutions are the lynchpins of the governance; they are vital in the initiatives and policy responses (across governments) for climate change. But their roles should not be confined to the national borders via official/governmental institutions. National governmental institutions with the help of non-governmental institutions should cut across the political boundaries and interact with their counterparts in various parts of the globe in an interdependent and interlocking scheme, which could create a region or even a world-wide concerted collective action.

The Kyoto Protocol clearly stated the importance of international cooperation of governmental and non-governmental institutions. Article 10 states that:

[All parties shall] [c]ooperate in and promote at the international level, and, where appropriate, using existing bodies, ... including the strengthening of national capacity building, in particular human and institutional capacities and

⁷ J-E Lane, *Public Administration and Public Management: The Principal-Agent Perspective*, (Routledge: London, 2005).

the exchange or secondment of personnel to train experts in this field, in particular for developing countries, and facilitate at the national level public awareness of, and public access to information on, climate change.⁸

In the last decade, in addition to the Kyoto Protocol, other international bodies, organizations and programmes focused on the structural and procedural requirements of climate change initiatives. The World Meteorological Organization, the United Nations Environment Programme, The International Civil Aviation Organization, the International Maritime Organization, and the Intergovernmental Panel on Climate Change (IPCC) are a few examples. They also underlined the importance of not only the official institutions but also non-governmental agencies including firms and non-profit bodies.

Contrary to expectations, not a great deal of momentum was created by the above-mentioned initiatives to facilitate and maintain international cooperation schemes among governmental and non-governmental institutions. The intricate interests and demands of multiplicity of actors (institutions, bodies, organizations) created complexities in the international cooperation schemes.

These complexities show an interesting dilemma about the structural and procedural features of environmental policies. Since national environmental policies encapsulated within the political borders are not able to bring about an effective global solution to climate change, some other motive needs to initiate global non-governmental institutions' commitment. The mix between the public and the private depends on negotiations among state, civil and market-based actors' interests, which should be agreed upon both domestically, within the country, and internationally, among the international public and private bodies. Yet the multitude of these bodies with conflicting interests and scopes make the task of achieving a negotiated global or even regional climate change resolutions quite difficult.

Adaptive Governance: a Proposal for a Possible Solution to the Complexities of Climate Change Policies?

Due to the disparate actors in climate change policies, an exclusive motive is required to encompass the official government structure. Governance or more specifically adaptive governance has a potential to be such a motive, if necessary adjustments are made.

Governance that derives from corporate management refers to a break from the usual style of government. It is a transition from top-down forms of bureaucracy to a bottom-up, which involves the development of new forms of interactions between the government, bureaucracy and the civil society, and the corporate sectors, diverse interest groups and private citizens on policy making issues.⁹ Such an approach aims a more transparent and open government apparatus.

⁸ http://unfccc.int/essential_background/kyoto_protocol/items/1678.php, accessed on 19 May 2013.

⁹ For details of adaptive governance see: D. Armitage, R. Plummer (eds.), *Adaptive Capacity and Environmental Governance*, (New York: Springer, 2010); M. Pelling, *Adaptation to Climate Change: From Resilience to Transformation*, (London: Routledge, 2011), D. Dredge, J. Jenkins, *Tourism Planning and Policy*, (Milton: John Wiley, 2007) 54-55, 463; J. O'Flynn, J. Wanna, *Collaborative Governance: A New Era of Public Policy in Australia?*, (Canberra: ANU E Press, 2008); I. Marsh, 'Governance in Australia: Emerging Issues and Choices', *Australian Journal of Public Administration*, Vol.61, No.2, 2002, 3-9.

Originating from this description of governance, adaptive governance can be defined as ‘the evolution of rules and norms that better promotes the satisfaction of underlying human needs and preferences given changes in understanding, objectives, and the social, economic and environmental context’.¹⁰ It also refers to the policymaking and implementation process, which integrates local community knowledge to advance a common/national interest. Such integration relies on polycentric institutional arrangements that operate at multiple scales,¹¹ and balance between centralised and decentralised control.¹²

The term was introduced to the environmental policy realm by Crawford Stanley Holling.¹³ Adaptive governance proposes a disintegration of the global realm of climate change into much simpler local problems, which could be approached concurrently. In this approach, inevitable uncertainties together with scientific and local knowledge are integrated to clarify and advance common interests. This policy-making approach is adaptive and incremental. Successful local policies are accumulated to build up comprehensive (national, regional even global) policy solutions; failed policies are terminated. Responsive institutional arrangements are built to monitor the changes and ‘maximize the flexibility of human populations to respond creatively and constructively to’ climate change.¹⁴ Development, success and progress depend on the cumulative learning from various policy trials.

The interest of this approach lies in its community-based understanding. In each community, even in one country, climate change problems are different in a way that is peculiar to that community. That means only people in that community can have the knowledge to make ‘procedurally rational and politically feasible decisions’: ‘State, federal, and international officials cannot know enough to mandate policies appropriate for the many local communities under their jurisdiction, even if they are interested’.¹⁵ This approach aims to create a patchwork type of understanding and interaction among various local communities.

The question remains: which communities should be taken into consideration in this patchwork? Obviously not every community subject to climate change: ‘recently damaged or vulnerable communities already motivated to address their own problems’ should be the primary focus. These chosen ones should have a network supported by external actors (national, international) so they can ‘capitalize on their differences and similarities to evolve better policies without a global master plan imposed from the top down’.¹⁶

Adaptive governance of environmental policies seems promising to facilitate climate change policies caused by the complexity of actors but it is not free of criticisms. This

¹⁰ S. H.-Dodds, R. Nelson, D. C. Cook, *Adaptive Governance: An Introduction, and Implications for Public Policy*, ANZSEE Conference, Noosa Australia, 4-5 July 2007.

¹¹ For the details of polycentric institutional arrangements see: M. McGinnis, (ed.) *Polycentric Governance and Development: Readings from the Workshop in Political Theory and Policy Analysis*, (Ann Arbor: University of Michigan Press, 1999).

¹² M. Imperial, ‘Institutional Analysis and Ecosystem-based Management: the Institutional Analysis and Development Framework’, *Environmental Management*, Vol. 24, 1999, 449–465.

¹³ For the details see: C. S. Holling, *Adaptive Environmental Assessment and Management*, (MI: Michigan University, 1978). See also: R. D. Brunner and A. H. Lynch, ‘Adaptive Governance: Proposals for Climate Change Science, Policy and Decision Making’ in A. Sumi, K. Fukushi, A. Hiramatsu (eds.), *Adaptation and Mitigation Strategies for Climate Change*, (Tokyo: Springer, 2010), 269-284.

¹⁴ S. Rayner, E.L. Malone, *Human Choice & Climate Change*, Vol. 4, (OH: Battelle Press, 1998), 120.

¹⁵ R. D. Brunner and A. H. Lynch, ‘Adaptive Governance: Proposals...’, 277.

¹⁶ R. D. Brunner and A. H. Lynch, ‘Adaptive Governance: Proposals...’, 281.

approach could be successful for creating a patchwork of local knowledge within the national scale but climate change issues are larger than national scale and as Evans¹⁷ stated, adopting this approach to an international problem could be very difficult since motivation to work together for different local governance actors of different nationalities could be low. The other criticism was put forward by Ostrom¹⁸ by stating the possibility of rapid alterations in climate change effects could challenge the resilience and robustness of the adaptive governance. Another criticism refers to the rawness of this approach - its potential success is still experimental and needs coordination to motivate local actors concurrently. The approach therefore becomes risky for acute climate change problems.¹⁹ There is also the risk of an inflexible bureaucratic system that could hinder the policy makers' focus on local interests and transfer them into the national policy making, and the risk of insufficient interconnectedness between the local/national/regional/global actors to develop adaptive policies. As Smit and Wandel²⁰ stated, the adaptive governance approach needs risk management by examining the adaptive capacity and adaptation measures required to improve the robustness of a system exposed to climate change.

These criticisms create constraints for practitioners and policy makers to cope with, in particular: 'i) ambiguous purposes and objectives of what should be achieved with governance; (ii) unclear contextual conditions in which governance takes place; and (iii) uncertainty around the effectiveness of different governance strategies'.²¹ Australia's climate change policy-making scheme clearly highlights these complexities and uncertainties.

Success of adaptive governance for environmental policies?: The case study of Australia

Secondary literature coverage on climate change subjects is vast in Australia, due to the climatic conditions of the past decade, including a prolonged and devastating drought, dust storms, soil erosion and declining water stocks.²² Furthermore, Australia is a high-energy consumer, reliant on fossil fuels, with one of the highest per capita emissions of GHG in the world.²³

¹⁷ For details see: J.P. Evans, *Environmental Governance*, (London: Routledge, 2011), 170-186.

¹⁸ E. Ostrom, 'Sustainable Social-Ecological Systems: An Impossibility?', The American Association for the Advancement of Science Annual Meeting: "Science and Technology for Sustainable Well-Being, San Francisco, 15-19 February 2007, 18-19.

¹⁹ M. Parry, O. Canziani, J. Palutikof, P. van der Linden, C. Hanson, (eds), *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, (Cambridge, UK and New York: Cambridge University Press, 2007), 12, 13, 20, 21, 35, 136.

²⁰ B. Smit, J. Wandel, 'Adaptation, Adaptive Capacity and Vulnerability', *Global Environmental Change*, Vol. 16, 2006, 282-292, 285.

²¹ J. Rijke, R. Brown, C. Zevenbergen, R. Ashley, M. Farrelly, P. Morison, S. van Herk, 'Fit-for-purpose Governance: A Framework to Make Adaptive Governance Operational', *Environmental Science & Policy*, Vol. 22, 2012, 73-84, 74.

²² L.C. Botterill, M. Fisher (eds.), *Beyond Drought: People, Policy and Perspectives*, (Collingwood: CSIRO Publishing, 2003), 1-8; M. Alston, J. Kent, *Social Impacts of Drought: Report to NSW Agriculture*, (Wagga Wagga: Centre for Rural Social Research, Charles Sturt University, 2004); Alston, M. and Kent, J., *Impact of Drought on Rural and Remote Education Access: a Report to DEST and Rural Education Fund of FRRR*, (Wagga Wagga: Centre for Rural Social Research, Charles Sturt University, 2006); R. Garnaut, *The Garnaut Climate Change Review: Draft Report*, June 2008, <http://www.garnautreview.org.au>.

²³ According to the Australian Greenhouse Office (2006), the main sectors that are responsible for Australia's GHG emissions are electricity, gas and water (35%), agriculture, forestry and fisheries (24%), manufacturing (13%), services and construction (11%), residential (9%), and mining (8%).

This research uses Australia as a case study to refurbish the discussion on climate change policies by focusing on the cooperation patterns between the local and national governance actors within the framework of adaptive governance. Australia is a good example to illustrate the deficiencies in adaptive governance despite the national awareness and effort to mitigate the effects of climate change.

Canberra's steps to develop its climate change policy provide insight into the effectiveness of adaptive governance in climate change policies. Canberra was initially reluctant to ratify the Kyoto Protocol since the US, India and China did not participate and the Protocol did not include developing countries.²⁴ As a substitute, Australia introduced the National Greenhouse Strategy²⁵ in 1998. This strategy is particularly important because it addressed one of major deficiencies of Australia's current climate change policy: a national uniform regulatory regime. The strategy emphasized the importance of an integrated policy paradigm for climate change covering the federal, state and local governments and incorporated the private sector as well. Yet this strategy did not bring the estimated target for the reduction in green houses gases.²⁶ In February 2006, the Council of Australian Governments announced the introduction of a new national Climate Change Plan of Action and formation of a high-level inter-jurisdictional Climate Change Group as an overseer of policy implementations.²⁷ Still there was no standardized and uniform climate change policy paradigm between the local, the federal and the business sector.

Australia's response to climate change after 2006 focused on the Kyoto Protocol and the Carbon Pollution Reduction Scheme (CPRS). Australia finally ratified the Kyoto Protocol in December 2007 (it came into effect in March 2008).²⁸ That was one of the first international actions of Kevin Rudd's government to increase Australia's international visibility. Another reason for the late ratification of the Protocol was the reluctance of John Howard's conservative government to reduce carbon emissions in fear that such an action would disadvantage the country economically.²⁹ More specifically the 'connections' between the Howard government and the 'natural resources and energy sectors', and the decision of the USA not to ratify the agreement',³⁰ caused the delay in ratification.

In July 2008, the Labor government's Green Paper on CPRS³¹ was released and in May 2009, the Carbon Pollution Reduction Scheme legislation³² introduced into the

²⁴ W. Hare, 'Australia and Kyoto: in or out?', *University of New South Wales Law Journal*, Vol.24, No. 2, 2001, 556-564; The Commonwealth of Australia Department of Foreign Affairs and Trade, 'Climate change – Australia's position', 2006, <http://www.dfat.gov.au/environment/climate/> accessed on 19 May 2013.

²⁵ The National Greenhouse Strategy: Strategic framework for advancing Australia's greenhouse response, 1998, <http://www.greenhouse.gov.au/government/ngs/pubs/ngs.pdf> accessed on 19 May 2013.

²⁶ For the details about the estimates see: R. Sullivan, 'Greenhouse challenge plus: A new departure or more of the same?', *Environmental and Planning Law Journal*, Vol. 23, No. 1, 2006, 60-73.

²⁷ Council of Australian Governments' Meeting, 10 February 2006, <http://www.coag.gov.au/meetings/100206/index.htm> accessed on 19 May 2013.

²⁸ For details of Australia's ratification of Kyoto Protocol see: I. Barnsley, 'Dealing with Change: Australia, Canada and the Kyoto Protocol to the Framework Convention on Climate Change', *The Round Table*, Vol. 95, No. 385, July 2006, 399 – 410; A. Kellow, 'Australia's Role in International Climate Negotiations: Kyoto and Beyond', *Energy & Environment*, Vol. 19, No. 1, 2008, 43-54.

²⁹ For the details of John Howard government's attitude to Climate Change see: Hayley Stevenson, 'Creating a Climate of Convenience: Australia's Response to Global Climate Change (1996-2007)', *Energy & Environment*, Vol. 19, No. 1, 2008, 3-20.

³⁰ I. Barnsley, 'Dealing with Change: Australia,', 400.

³¹ For the details of the Green Paper see: <http://www.climatechange.gov.au/publications/cprs/green-paper/cprs-greenpaper.aspx>, accessed on 20 May 2013.

Parliament. The Senate voted against the legislation in August 2009 and the government reintroduced the legislation in October. After two years of discussions and controversy, Australia's carbon tax was adopted in October 2011.

One main reason for such a delay in carbon tax legislation was that as a substantial exporter of coal, 'public opinion has generally favoured low-carbon policies, even as politicians, fearing adverse impacts upon Australia's terms of trade, or adverse mobilisations of opinion by political opponents, prevaricated over policy alternatives'.³³ The hints from these steps show that the plurality of climate change actors in Australia exacerbates seemingly irreconcilable differences in perspective; this includes a considerable number of climate change sceptics.

These steps also denote the need for voluntarism³⁴ by the private sector to adopt into national climate change policies, which do not put mandatory targets in mitigating the climate change effects. Since there are no top-down targets for energy efficiency or green house gas emission reduction, every actor put their own targets, which could also create inconsistencies at the expense of national objectives.

In terms of adaptive governance Australia built up brand new plans and programmes for encouraging local mitigation responses and produce effective local environmental planning.³⁵ Two important examples for such steps are National Climate Adaptation Framework and Local Adaptation Pathways Programme, which provided financial support to local governments to develop local climate risk assessments and adaptation plans. Yet they ended up without any significant success.

One of the major reasons for such programmes' failures was a miscalculation or a misperception that climate change issues could be solved via focusing on the local level. For sure, the local governance and their adaptation to environmental polices are important but 'implementing effective local adaptation plans may be beyond the capacity of many local governments',³⁶ which are also 'ill-prepared for the complex challenges'³⁷ of climate change.

In Australia in addition to the general deficiency of weak practices in terms of local governments environmental policies there are also 'structural, procedural, and contextual constraints to local adaptation planning'. One important constraint is that some regions of Australia, such as Queensland, has a 'complex and multi-layered governance framework' and for effective policy implementations it requires the above-mentioned vertical coordination scheme from local to, even, federal level. In other words there is the lack of 'consistent and clear policy direction from state and federal governments' to the local governments.³⁸ Such lacking could create

³² For the details of the legislation see:
<http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22legislation%2Fbillhome%2Fr4127%22>,
accessed on 20 May 2013.

³³ C. Rootes, A. Zito, J. Barry, 'Climate Change, National ...', 679.

³⁴ A. Griffiths, N. Haigh, J. Rassias, 'A Framework for Understanding Institutional Governance Systems and Climate Change: The Case of Australia', *European Management Journal*, Vol. 25, No. 6, December 2007, 415–427, 424.

³⁵ For the details of Australian Government's adaptive governance measures on climate change see: the Department of Climate Change, *Adapting to Climate Change in Australia: An Australian Government Position Paper*, Commonwealth of Australia, 2010.

³⁶ I. Baker, A. Peterson, G. Brown, C. McAlpine, 'Local government response to the impacts of climate change: An evaluation of local climate adaptation plans', *Landscape and Urban Planning*, Vol. 107, 2012 127–136, 128.

³⁷ S. C. Moser, A. L. Luers, 'Managing climate risks in California: The need to engage resource managers for successful adaptation to change', *Climatic Change*, Vol. 87, 2008, 309–322, 310.

³⁸ I. Baker, A. Peterson, G. Brown, C. McAlpine, 'Local government response...', 128, 134.

misunderstandings in the local governments about how specific their policies should be and to what extent they can contribute to the national scale mitigating and/or adapting efforts.

In the light of the above-mentioned constraints, established standards are necessary for local plans recognizing policy implementation schemes from the state/federal level. Such schemes should take local governments' parameters, needs, and prospects into consideration via consultation with the local.³⁹

Neither Canberra's nor the local governments' or private sector's enthusiasm and efforts could bring a national uniform regulatory climate change policy in Australia. The plurality in different levels of governance and the competition among various actors that can affect climate change policies together with the need for voluntarism of these actors create uncertainty for the success of Australia's national climate change policy and inefficiencies in its implementation.

Conclusion

Climate change is one of the most fundamental and serious challenges that confronts world governments. Yet it is not equally noticeable every part of the earth at all times, which causes uneven policy responses from different governments. This hinders a comprehensive and coordinated global policy on climate change. Such deficiency of global climate change policy accentuates the significance of vertical cooperation platforms from national to global. In other words the issue may be global, but the political action necessary to address climate change is inevitably local and national/federal. However the national or the local side does not have smoothly operating climate change policies either.

Within the territorial borders of a country there is also an asymmetry in terms of climate change effects and therefore the policy reactions of local governments. For mitigating these asymmetrical interactions adaptive governance was put forward as a solution. Yet this approach is still not battle-proven. The obscurity of the purposes and objectives of governance, ambiguity of contextual framework on which governance operates and experimental status of adaptive governance, together with other criticisms mentioned above, underlines the complexities and difficulties that adaptive governance still does not provide a fully-fledged resolution for climate change. All these intermingling and interlocking complexities show that without building a sufficient consensus between different climate change actors about the need to act and without awareness of the structural and procedural deficiencies of adaptive local governance it is very difficult to develop a comprehensive, effective, and sustainable climate change policy.

This complexity of global climate change policy has, of course, many elements to be solved. Yet one approach to alleviate this problem could be focusing on the local-national/federal policy interactions, namely to address the problems of adaptive governance. For this, two major parts of adaptive governance should be sorted: governance and local-national/federal interactions. In terms of governance, two major issues should be solved. Firstly, the purpose of governance should be defined in a way

³⁹ For similar views see: I. Baker, A. Peterson, G. Brown, C. McAlpine, 'Local government response....', 135.

to balance varying interests, beliefs and values; secondly contextual conditions and expected outcomes of different governance mechanisms should be determined. In terms of smoothing over local-national/federal interaction the starting point should be constructing a flexible and inclusive model for national policy making apparatus that could be resilient to the changing of demands and policy proposals from the local. For such a model to be operational, a filter is necessary – one which would screen and distil the policy proposals from the local to the national/federal and vice versa. Such filter could be a council or even a committee but it should embody the bureaucratic, scientific and adaptive governance elements at the same time, with which it could act as a system of checks and balances to enhance accountability. This filter should also be responsible for what is included and excluded from policies and who is responsible and accountable for their implementation. Via these characteristics the filter could help the local and national/federal levels of governance to have a better understanding of cooperative policy making and its bureaucratic implementation. Such a filter could also help to build up a flexible, standardized and uniform climate change policy paradigm, which was seen as Australia's major deficiency in climate change policies, between the local, the federal and the business sector.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The logo is partially enclosed by a large, light blue circular arc that starts from the bottom and curves upwards towards the right. A smaller, light red circular arc is positioned above the 'iafor' text, partially overlapping the blue arc.

*Collaboration for SUCCESS in Science:
Science Understanding through a Collaborative Commitment to Enduring Student
Success*

Li-Ling Yang*¹, Maria Lawrence*²

*¹Roger Williams University, USA, *²Rhode Island College, USA

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Abstract

This paper discusses the implementation of lesson study as a research model in a professional development project with elementary school and middle school teachers to increase teachers' use of instructional approaches to science inquiry and students' science practices and knowledge.

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Introduction

Contemporary reform in science, technology, engineering, and mathematics or STEM education in the United States has been a topic of considerable attention over the past nearly 70 years. The National Science Foundation (NSF) became the federal agency responsible for making funds available for research and education in the United States. The NSF therefore has been funding STEM education reform for decades. The funding has produced curriculum projects and supported professional development for teachers. It was during the 1990s that statewide systemic reforms and local change reforms were initiated with the release of National Science Education Standards (1996). The trajectory of the reformation in STEM education has been clear and consistent through the present – improve STEM education and advance STEM education through meaningful partnerships between scientists and K-12 education.

National studies reflect the need for teacher professional development in science education as documented by Horizon Research, Inc., among other researchers and evaluation entities, involved in the systemic reformation of elementary science efforts of the 1990s to the present. A 2002 Horizon Research, Inc. report stated that “fewer than 3 in 10 elementary teachers reported feeling well prepared to teach the sciences, 77 percent indicated that they were very well qualified to teach reading/language arts (Fulp, 2002). The same report reflects how underrepresented science learning is in elementary schools with science receiving substantially less instructional time compared to other content.

Development of Project SUCCESS

Project SUCCESS (Science Understanding through a Collaborative Commitment to Enduring Student Success) is a collaboration of two higher education institutions and an educational collaborative, in partnership with two public school districts to improve elementary school and middle school science teaching and science learning. Within the state where the project was implemented, there are four regional education collaborative organizations. The state legislature sought to establish the non-profit collaborative system to “maximize educational effectiveness” among districts situated within these collaborative regions. Project SUCCESS was conceptualized in January 2010 by the northern regional collaborative with the involvement of eight northern school district administrators, teachers, and education consultants. The initial proposal for funding of the Project SUCCESS was sought through the collaborative. The proposal was identified to be funded pending modifications to the scope of the project. Changes were made that reflected the provided feedback, and the National Science Foundation Math-Science Partnership (NSF MSP) grant was awarded to the Project SUCCESS in the spring of 2010.

The NSF-MSP grants are made available to projects with several key outcomes as project goals.

“The MSP program seeks to improve K-12 student achievement through a sharp focus on three inter-related issues:

- Ensuring that all students have access to, are prepared for, and are encouraged to participate and succeed in challenging and advanced STEM courses;
- Enhancing the quality, quantity and diversity of the K-12 STEM teacher workforce; and

•Developing evidence-based outcomes that contribute to our understanding of how students effectively learn the knowledge, skills and ways of thinking inherent in mathematics, computer science, engineering, and/or the natural sciences.”

[Source: http://www.nsf.gov/pubs/2012/nsf12518/nsf12518.htm#pgm_desc_txt]

The overarching goal of SUCCESS is to increase instructional coherence by aligning curriculum, instruction, and assessment to each other and to the state standards with a desired outcome of improved student science learning. The core project objectives are to improve teachers' science practices in the classroom with learners and to develop teacher learning communities and leadership through the use of a cohort model and Lesson Study (LS). Project SUCCESS teacher professional development employs a blended professional development strategy that consists of multiday workshops followed by ongoing LS during the school year. LS, a teacher professional development approach originated in Japan, is an established form of action research that engages teachers in a peer-shared reflection on learning (Lewis, 2002). A typical LS cycle consisted of the following stages: selecting a goal, identifying the content topic, designing the unit of study, creating the research lesson, research lesson presentation and observation, and distribution of the unit of study and research lesson (Kolenda, 2007). This iterative process can be completed as many times as desired or needed to develop exemplary lessons.

Research has reported many positive impacts of LS on teaching and learning at all levels of schooling. For example, a study by Mutch-Jones, Puttick, and Minner (2012) found that middle school teams of science and special education teachers who participated in LS improved their instruction in inclusive classrooms. These teachers “were able to generate more accommodations for students with learning disabilities, and they increased their ability to set an instructional context and adapt an instructional plan to meet science learning goals for all students in an inclusive classroom” (p. 1012). Kolenda (2007) also reported that LS helps to “address the isolationism in which teachers work by promoting greater staff collaboration,” identify student misconceptions and build strategies to address them into the research lesson, make “data-based” decisions to “improve teaching and learning,” and use “positive peer pressure among colleagues” to create “an inherent demand for staff improvement.” Kolenda further added the following benefits of using LS as a professional development approach:

1. “Since teachers are directly in charge of this process and its outcomes, they have a sense of empowerment and feel valued;”
2. Teachers teaming up with “varied content expertise” and different years of experience in teaching profession gain “a broader and deeper understanding of the content material;”
3. “It [LS] encourages a thoughtful and thorough examination of student work and an analysis of their learning;”
4. “Through extensive planning sessions, it [LS] promotes a more frugal curriculum that concentrates on fewer topics to a greater depth;”
5. “Research lessons are designed to integrate science process skills with content so that the skills are taught in context thus increasing student achievement levels.” (p. 31)

This paper presents findings to date in this ongoing project as a qualitative case study analysis using illustrative case stories of participating classroom teachers. The study analyzes how the professional development experiences of teachers in Project SUCCESS has thus far impacted their science pedagogy, attitudes toward teaching science, students' learning of science, and teachers' response to the use of lesson study as a professional development model.

Methods

Selection of School Districts

Project SUCCESS identified two school districts, District 1 and District 2, to be the high needs school district partners. The criteria employed to make this determination are twofold. First, a review of the 2008-2009 District Summary reports for New England Common Assessment Program (NECAP) science scores for the districts that comprise the regional collaborative reveal these two districts as having significant need based on the percentage of students that attained “proficient” at 16% and 12% respectively (Rhode Island Department of Elementary and Secondary Education [RIDE], 2013). Second, a culturally and linguistically diverse population of students characterizes both districts. District 1 is an urban ring school district, and District 2 is an urban school district. Each district serves communities with economic needs, as indicated by the percent of free and reduced lunch, cultural and linguistic diversity, as well as considerable percentages of special needs learners (see Table 1).

Teacher Participants

Project participants consisted of at least one teacher from each building in both districts and were recruited through self-selection or the recommendation of the district/building administrators. The first cohort of project participants, 23 elementary school and middle school teachers (10 from District 1 and 13 from District 2), was recruited in summer of 2010 and participated in the first two years of project activities. 19 Cohort 1 teachers continued through the third-year of project activities and served as mentors to the second cohort. Among the returning Cohort 1 teachers, 13 were from District 2 and six from District 1. The second cohort of 17 elementary school teachers (16 District 2 teachers and one District 1 teacher) was recruited to begin in fall of 2012.

Project Activities and Data Collected

Project timelines and activities are summarized in Table 2. Data from the professional development activities were collected during each of three distinct PD periods of the project. The last project data will be collected during fall of 2013.

A survey (Appendix 1) was distributed to both cohorts of teachers to collect baseline data at the outset of the project in June 2011 for Cohort 1 and November 2012 for Cohort 2. Following two LS workshops, both cohorts voluntarily responded to a workshop feedback form (Appendix 2). In addition, a project feedback form (Appendix 3) was distributed to Cohort 1 teachers and principals in May 2012, respectively. A similar project feedback form was distributed to four teams of mix-cohort teachers who completed LS sequence in early June 2013. Participants were asked to provide commentary about the PD components.

A final project feedback form will be administered to current teams as each team completes two lesson study lessons before the end of fall 2013. An administer feedback form will also be distributed to the school principals and the district curriculum coordinators in the fall of 2013. The findings of this survey will be reported in a follow-up study.

Lesson Study Process

During the second PD period, 23 Cohort 1 teachers formed five LS teams with two teams of District 2 teachers, one team of District 1 teachers, and two teams of mixed district teachers. Each team is consisted of three to five teachers. 36 teacher participants formed eight mixed cohort LS teams (i.e. teams consisting of both cohorts) during the third PD period. Each team consisted of three to six teachers. Teachers selected lessons from their respective science curricula for the research lessons.

Team teachers completed two cycles of the Lesson Study process. A lesson plan template (see Appendix 4) was provided to teams to use for planning the lesson. Teachers and/or district administrators ensured that substitute teachers were provided to facilitate the time for the discussion of the lesson study with the team. The lesson planning phase was not observed by the investigators. Teachers' completed lesson study lesson plans were given to the investigators before or on the day of the lesson study.

Data Analysis

The impact of the project's professional development on the teaching and learning of science is being assessed through a qualitative analysis of the teacher and principal feedback forms, student work samples from lesson studies, lesson plans, and researchers' observation notes. The approval to observe and document lessons was obtained from the school district administration and the project participants.

Results

Demographics of Participating Districts

Four elementary schools (Grades K-5) and two middle schools (Grades 6-8) in District 1 and ten elementary schools (Grades K-6) in District 2 participated in Project SUCCESS.

The regional collaborative, institutions of higher education (IHE) and district administrators engaged in comprehensive needs assessment activities on the districts' science curriculum, instruction and assessment systems and current teacher practices in science. It was found that neither district has a local assessment or assessment system in place. Also, District 2 uses materials rich, kit-based science curricula consistent with the state's science education standards. District 1 approved a science curriculum aligned with National Science Education Standards (1996) in March 2002, and the district is in the process of reviewing science curriculum and professional development for its elementary schools that will align with the state's science education standards.

Demographics of Project SUCCESS Teacher Participants

Initial Teacher Survey

Respondents to the initial teacher survey (n=14 Cohort 1; n=25 Cohort 2) ranged in professional teaching experience from five to 25 years for Cohort 1 and one to 30 years for Cohort 2. Average years of teaching experience for Cohort 1 is 15.6 years, while it is 13.7 years for Cohort 2. All

grades levels from Kindergarten through six were represented in both cohorts; however, most Cohort 1 teachers teach third grade, and most Cohort 2 teachers teach fourth grade. Half of Cohort 1 teachers indicated that their last professional development in science was more than 4 years ago or not applicable, while almost all Cohort 2 teachers responded the same. All responding teachers reported having common planning time in their schedules, and on average they agree they are supported in their teaching of science and recognize that a range of strategies are necessary for students' success. The data also expresses the concerns teachers have for appropriate resources, clear district level standards and expectations, an aligned and articulated curriculum, and guidance for how to teach science. Both cohorts of teachers also indicated in the survey that they rarely got a chance to observe or be observed by other teachers.

Lesson Study Workshop Feedback

Twenty-four Cohort 1 and 2 teachers voluntarily responded to a feedback form for two lesson study workshops, one held on March 15, 2013 (n=13) and the other on April 5, 2013 (n=11). The workshops served to review the nature of science and science practices and introduce the purpose and process of LS to cohort two teachers, while reviewing LS for cohort one teachers. The feedback form required teachers to check their responses on a scale from one to five with strongly disagree equal to one and strongly agree equal to five. The average scale response was calculated for each workshop respondent (median average = 4.5). The responses from the LS workshop feedback survey illustrate teachers' overall satisfaction with the workshop usefulness and potential to positively impact their instruction of science.

“[What worked today was] determ[in]ing groups and topics for lesson study and actually watching and learning how lesson study is conducted.” (LS workshop feedback form, 3/15/2013)

“[What worked today was] team meeting and information given in [the] presentation.” (LS workshop feedback form, 4/5/2013)

These comments from LS workshop participants along with the feedback scores reveal that teachers valued the LS workshops and the shared planning among colleagues.

Two LS workshop respondents shared that they would have benefited if specific attention was given to the state test (NECAP) and the science content standards. When asked what would improve the workshop, one respondent wrote:

“understanding the standard
unpacking the standard
how to help students be successful on the NECAP
becoming more confident science teachers”

Five LS workshop respondents stated that “more time to plan” in the LS teams would have been an improvement for them.

LS Case Stories

Case stories are the stories associated with teachers and team research lessons. This section presents findings from case stories within the project to date. Pseudonyms are used in the case stories.

Four out of 23 Cohort 1 teachers and one of 15 principals returned completed project feedback forms in June 2012. One teacher from each of the two mix-cohort teams provided feedback in May 2013. Since the 2013 survey is still ongoing, this section only focuses on the findings from the 2012 survey that the four teachers and the one principal responded to. These four teachers are Polly, Cindy, Katie, and Emily, and they teach sixth, second, first, and third grade, respectively.

The project impacts as well as the challenges that the teachers encountered while practicing inquiry science teaching over the two years of Lesson Study implementation are discussed below.

1. Shifts in instructional methods/approaches

Polly indicated that “The workshops have made a big impact on my teaching style.” She “use[d] to teach science experiments directly from the text and follow the steps exactly with the students.” She has changed or shifted from a cookbook or prescriptive approach to teaching science to a more inquiry-based one and started acknowledging student agency in their learning. She has “learned to give less information up front and allow students the chance to work together to figure things out.” The shifting responsibility to the learner means that she is able to trust that students can and do learn science using hands-on science inquiry. Learner independence is necessary in order to accurately assess students’ abilities to authentically engage in the processes and practices of science.

Teachers also found the LS process beneficial. Polly added that the LS “practice taught me to try new ideas.” She acknowledged immediate results from making changes in her science instruction by stating that “I actually enjoy teaching labs better now,” as a result of using the professional development workshop experiences and engaging in the LS cycle. She appreciates the opportunity for change and is invigorated by and likes the changes in teaching science. Cindy, on the other hand, utilized that experience to make changes in her instruction with her students. She created “a science center using the same lesson” that she observed during the LS and “adapted to” her second graders. Cindy asserted that LS “allowed me to think more clearly and refine my teaching goals as well as how to more efficiently to teach content.”

The elementary school principal who returned the survey observed a teacher teach after participating in Project SUCCESES professional development. He describes how the teacher made shifts in her instructional methods or approaches to better engage students in the following feedback he provided.

The teacher at my school definitely bought into and implemented more inquiry activities in her instruction. I had a chance to visit some of [the] science lessons and could see the types of activities, questions, and discussions were absolutely consistent with the goals of the program. Science notebooks were being used and along with the other changes were definitely increasing the student engagement and understanding.

This principal's feedback documents the importance of administrative leadership to express active interest in and support teachers' professional growth and to verify that teachers actually improve teaching and learning through engaging in PD.

2. Appreciation of the role of science practices for learning science content

Cindy acknowledged that the workshops that she attended have helped her become "a more focused teacher of science" after she "learned more about the scientific process skills and science notebooks. The changes that she made in her science teaching have resulted in her professional satisfaction or efficacy. Similarly, Katie asserted how giving instructional attention to science processes affords her the opportunity to probe students' thinking about and understanding of content.

I have integrated inquiry more often during students' science experiences. I have focused more on the development of students' process skills. When assessing, I consider students ability to use steps of the inquiry process, cooperate with peers, and communicate their results. I ask students higher-order questions. For example, I ask them to explain why they think something happened or how they would design an experiment to test it. I encourage students to ask their own questions about science topics and provide experiences that relate to their areas of curiosity and interest.—Katie

The above statement shows that Katie starts focusing on students' development of various process skills, including questioning, prediction, communication, and observation, which is evident in the samples of her student work. The analysis significance of the student work samples will be discussed in the next section.

Emily has embraced inquiry as a process of practices for conducting science investigations. She has done "a lot more posting of information, a lot more sharing out of information from student to student." It is evident that she is modifying her practice to develop communication skills among her students.

3. Building a collaborative learning community to support each other's science teaching

The project goal of building a collaborative learning community is advanced through the LS cycle. Emily acknowledged that the LS process "was interesting and very helpful." She reflected on her experience of collaborating with her team members from other schools by stating that:

First having the time to sit with my team (from 3 other schools) and really work on the lesson plan together and throw out what has worked in the past and what has failed and then watching how the first lesson went-revising, what didn't go smoothly or took too much time, or not enough time, was incredibly helpful. It was definitely harder on the first teacher, to perform and then have to go back and work out the kinks! But, it really opened our eyes I feel!

4. Challenges encountered

When prompted for topics that they would like to further explore in the future workshops, teachers pointed out the following areas: use of science notebooks and assessment of/for learning. They are interested in developing *practiced science literacy* and assessing students' learning through science notebooks.

Both Katie and Emily expressed the same need for more support for how to view classroom science instruction and assessment in relation to the state standardized assessment and the

Common Core standards. Katie pointed out that she “would like to know more about the new science frameworks and their impact on instruction and testing.” Likewise, Emily stated that “I’d like more information on how to align NECAP information to my teaching so that these topics are investigated fully so the children do better on the tests.”

Emily anticipates changes and challenges for how she will move forward within her professional community.

I wish science was still introduced in the lower grades to give the students some prior knowledge when they get to me... I wish I had more time to cover more and do a thorough job of covering the topics.... I feel still very frustrated because there is little consistency throughout the schools with the curriculum and units.

Emily describes the disconnect between what she is being told to do by the district, and how she is being supported in order to accomplish her instruction of science – time restraints, lack of resources and lack of consistency, specifically in elementary grades. There is greater pressure on higher elementary grades in the district with no demand for science in the lower grades (K-2).

Analysis of Team Lesson Study Lessons

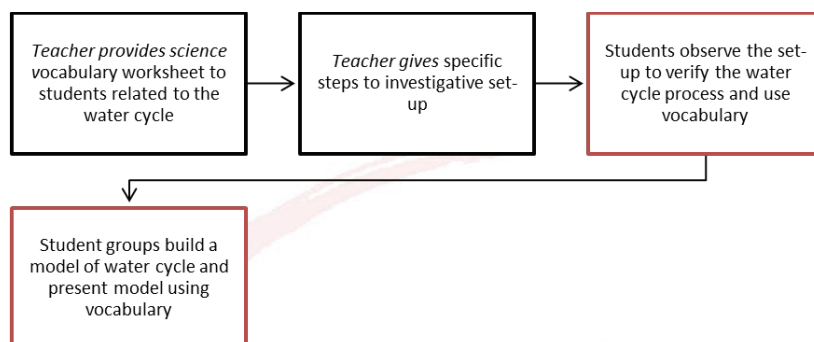
This section shares the comparative analysis of LS lessons conducted by two Cohort 1 teams, Team A and Team B, in the spring of 2012. The investigators identified any changes in teachers’ instruction and students’ learning performances during the second implemented LS lesson following the first lesson observation. The analysis of the other teams’ LS lessons is ongoing and will be reported in a follow-up study.

- Team A: The Water Cycle

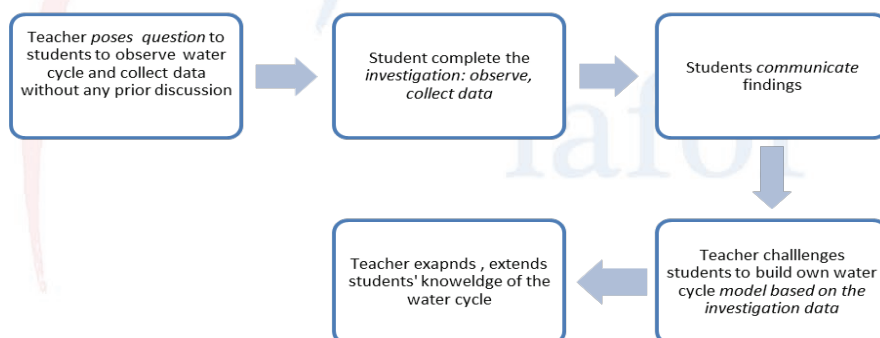
Team A consisted of five fifth- and six-grade teachers from District 1 in Spring 2012. They conducted their first LS at an elementary school’s fifth-grade class and their second LS at a middle school’s six-grade class. Team A teachers taught a lesson prior to the observed lesson to introduce students to the basic water cycle concepts. The lesson observed focused on students’ exhibiting their knowledge about the processes of the water cycle gained from the prior lesson.

Team A teachers modified the instruction from the first to the second implementation of the research lesson by emphasizing a more learner-centered approach and students use of the science process skills, such as questioning, prediction, communication and planning investigations. Students were asked to make and communicate their meanings from their observations and an interpretation of the observational data. The shifts in instructional emphasis are illustrated by the story lines of the research lesson.

Storyline of 1st Implementation of Team A's Water Cycle Research Lesson



Storyline of 2nd Implementation of Team A's Water Cycle Research Lesson



While comparing the two LS lesson plans by Team A, a significant change the team made in the second lesson was that they were able to let students “research the water cycle through inquiry.” Previously, they introduced the vocabulary in the beginning of the first observed lesson. The observation data from the first implementation of the research lesson study (March 3, 2012) also consisted of students recalling vocabulary learned from a lesson done one to two days prior to the observation of the research lesson. Students were then told they would recreate the water cycle using the available materials. When the team reinvented the lesson for the second observation, they intended to allow students to “set up [the] water cycle bag [model] without explaining vocabulary.” This change would require students to make meaning from observing the closed water system.

The debriefing of the first implementation encouraged the teachers to focus on conceptual understanding while students assumed increased responsibility for representing their thinking and engaging in science practices based on their observations of a water system investigation.

Observer notes (May 6, 2012) include students communicating in small groups with peers about their knowledge of the water cycle, the design for the expression of those ideas, the selection of materials, the construction of the model, the presentation of the model, and what the model conveyed about the water cycle from their prior investigation. While students communicated with each other and the teacher, the teacher was observed recording the accepted science vocabulary on the board as language was raised by students.

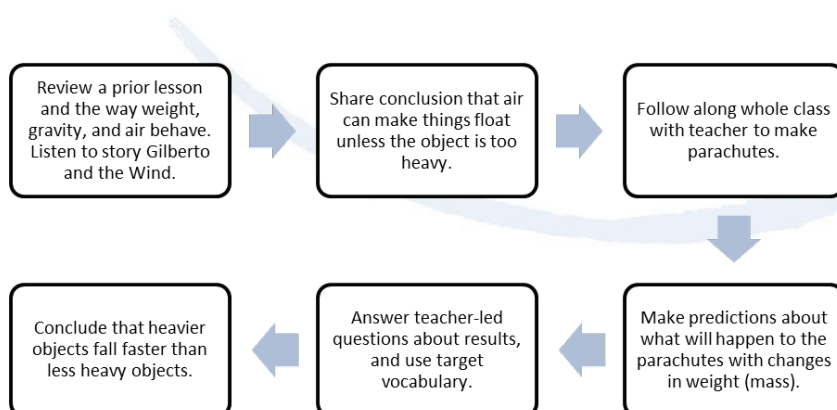
As students presented their models, the teacher used probing and challenging questions to stimulate whole class discussion. For example one group presented a model that included a mountain and a body of water. When asked by the classroom teacher why the group included a mountain, the students responded “water will run off the mountain”. The teacher recorded the term “runoff” affirming the students’ contextual use of the science term. The observed instructional shift from the first implementation toward the research lesson’s second implementation provided a richer authentic development of students’ science knowledge and science process skills.

Table 3, Analysis of Team A’s Lesson Study, summarizes the students’ performances as a result of the differences in first and second implementation of the lesson. The center column reflects the analysis of the first implementation of the research lesson followed by the observed planned changes during the second implementation of the research lesson.

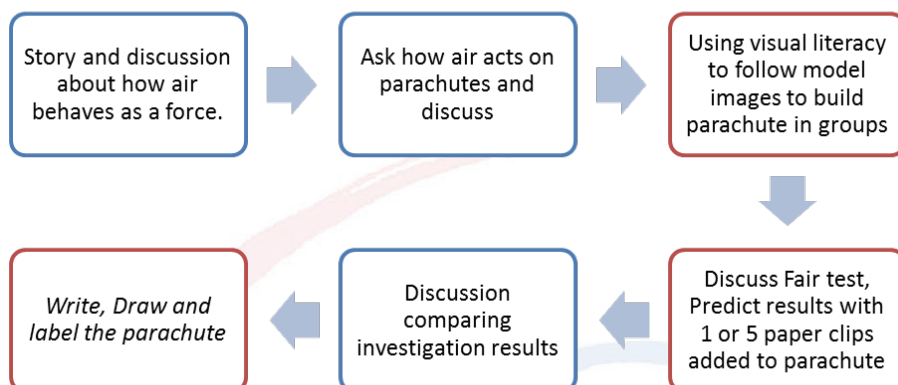
- Team B: Parachutes

Team B consisted of three first- and second-grade teachers from both districts. Both implementations of their research lesson were conducted in first-grade classes in spring of 2012. Data from the analysis of Team B teachers’ LS reveals a greater emphasis on process skills to access science content and focus on first and second grade students’ explanation of their ideas using evidence.

Storyline of Team B’s 1st Implementation of the Parachute Research Lesson



Storyline of Team B's 2nd Implementation of the Parachute Research Lesson



The changes in this research lesson shifted students' focus to science process skills inclusive of the investigation design. While there was evidence in the first implementation that students came to the conclusion that air is a resisting force to gravity, in the second implementation of the lesson, greater emphasis was given to the design of the investigation and the comparison between the two trials of releasing the parachute with different masses attached to come to a conclusion based on the investigation evidence. The notebook entries in the first implementation of LS lesson revealed how students made unstructured drawings to reflect the investigation. Students drew images that included classroom scenes (e.g., tables and chairs) and parachutes. In the second implementation of the research lesson, students had visual as well as verbal scaffolds. By requesting a detailed, labeled drawing of the parachute, students were required to think about how the parachute was constructed, and how that construction related to how the parachute functioned or worked. A sample student drawing from the second implementation is depicted in Images one and two below. The drawing has analysis significance, because it reflects the science investigation as a literacy event with clear literacy practices (Rush, 2003).

Image 1

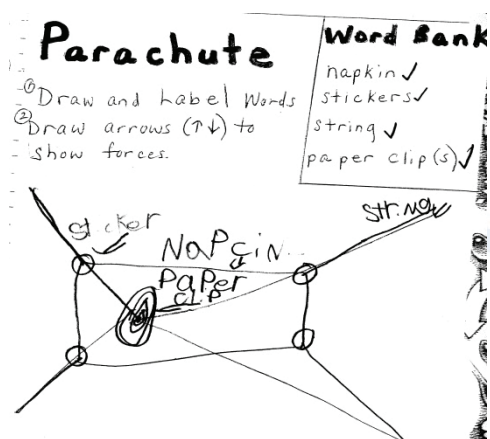
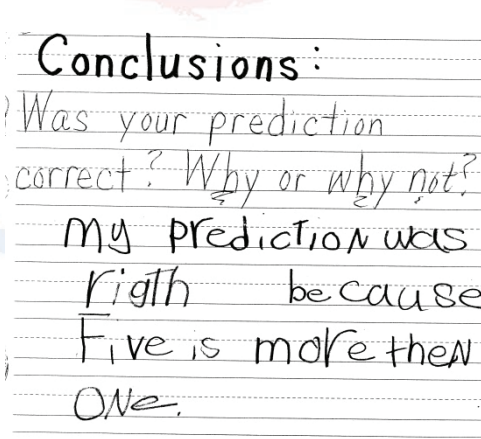


Image 2



This labeled drawing in Image 1 communicates how the materials were used for reference when writing, showing, or telling others about the investigation and the investigation results. The teacher scaffolds the practice of science literacy by providing a word bank of the materials. In Image 2, the same student shares a conclusion that revisits the pre-investigation prediction.

What makes this entry significant is the teacher's demand for an explanation. By asking the student to revisit the prediction, and explain the reason for the correctness or incorrectness of the prediction, the student is guided to make a claim based on the observational data and prior knowledge. Table 4, Analysis of Team B's Lesson Study, summarizes the students' performances as a result of the differences in first and second implementation of the lesson.

Despite teachers' greater emphasis on inquiry in science teaching and learning, their unfamiliarity of science process skills, especially hypothesizing, inferring, and predicting, was observed in each teams' lesson study lessons. This creates a challenge in teachers' capacity in correctly identifying the process skills that their students will need to use and adapting their instruction with the existing science curriculum materials.

Conclusions

This paper sought to present the activities and findings of SUCCESS, an ongoing three-year science education professional development (PD) partnership project with teachers in grades Kindergarten through six in two urban districts in New England in the United States. This is an ongoing project, however, based on the LS data that is available to date, it is possible to assert that this PD model and activities have positively impacted teachers' understanding of the nature of science inquiry practices and the importance of teaching science practices when teaching science content in grades K-6. This claim is supported by these findings thus far, which were presented in this paper:

- The sample case story analyses illustrate teachers' adoption of instructional strategies that utilize science practices to create diverse, developmentally appropriate learning opportunities for students consistent with state science education standards.
- Teacher feedback indicated that self-selected LS teams ensured teacher agency and leadership within the PD model to work in a variety of team configurations with regard to science content, grade levels, schools, and districts.
- Students' products and performances demonstrate discernible learner growth toward standards-based outcomes as a result of Project SUCCESS's impact on teachers' implementation of science curriculum.

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Table 1. Percentages of students who are ELLs, receive special services, or are eligible for free/reduced lunch in each district

| District | ELL | Special Services | Free/Reduced Lunch |
|------------|-----|------------------|--------------------|
| District 1 | 1% | 18% | 40% |
| District 2 | 12% | 15% | 75% |

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is surrounded by two large, overlapping, semi-transparent circular arcs. The outer arc is light blue and the inner arc is light red. The background of the page is white.

| Table 2: Project Timeline and Activities | | |
|---|--|--|
| July 1, 2010 to June 30, 2011 | July 1, 2011 to June 30, 2012 | September 2, 2012 to May 31, 2013 |
| <ul style="list-style-type: none"> • Conducted orientation and planning meetings with the regional school districts collaborative personnel and district level leadership.. • Completed a two-day Leadership Institute to review the goals and activities of the project and the project's scope... • Held two-day inquiry PD workshops. District 2 teachers were present in largest number making it necessary to schedule District 1's Cohort 1 teacher PD in fall 2011. | <ul style="list-style-type: none"> • Completed inquiry PD workshops for District 1 teachers.. • Completed Cohort 1 Lesson Study professional development sessions and workshops on Science Practices and Processes. • Scheduled and conducted ten Cohort 1 LS sessions. • Engaged in the on-going development of a project website for participants (https://sites.google.com/a/nric-pd.org/project-success/home). | <ul style="list-style-type: none"> • Scheduled and conducted project orientation with cohort1 and 2 teachers. • Scheduled and conducted inquiry PD workshops with cohort 2 teachers. • Scheduled and conducted LS workshop and planning sessions with teacher participants. • Planned and scheduled, then conducted eight mixed cohort LS sessions. Eight more LS sessions will be conducted in fall 2013. • Planned science content PD on data analysis through graphing with hands-on investigations in physical science and life science for both cohorts 1 and 2 for summer 2013. |

Table 3: Analysis of Team A's Lesson Study, Water Cycle

| Column 1 | Column 2: Analysis | Column 3 |
|---|---|---|
| In the First Implementation of the research lesson, students... | As a result of the analysis and debriefing of the 1 st implementation, teachers reached consensus on the following changes intended for the second implementation: | In the Second Implementation of the modified Research Lesson, students... |
| Were given the vocabulary as a means of explaining the water process at the beginning of the observed lesson. | Do not name or provide vocabulary associated with the water cycle at the beginning of the lesson. | Were not given specific science vocabulary before the lesson. |
| Used a worksheet to record vocabulary and definitions, e.g., evaporation and condensation, prior to students' investigation. | Use questions to guide students to share observation of water in a closed system. Use formative assessment of students' responses. | Were encouraged to focus on describing their observations from the investigation. Used vocabulary they believe was associated with the processes of the water cycle. Some terms used by students were lay terms and some terms were science vocabulary. Students received a handout with explanations of the water cycle that corresponded with a labeled image of a land-water model of the water process after they presented their water cycle models. |
| Constructed physical models following a discussion of their observations made in a prior-day investigation that provided evidence of the water cycle process. | Provide materials and asked students to build a land-water model that reflects their understanding of how water behaves. | Constructed physical models that reflect their prior knowledge of the water cycle without any prior instruction/discussion of water cycle process. |

Table 4: Analysis of Team B's Research Lesson Study Lesson

| Column 1 | Column 2: Analysis | Column 3 |
|--|---|---|
| In the First Implementation of the Research Lesson, students... | As a result of the analysis and debriefing of the 1st implementation, teachers reached consensus on the following changes intended for the second implementation: | In the Second Implementation of the Research Lesson, students... |
| Review a prior lesson and the way weight, gravity, and air behave. Listen to the story "Gilberto and the Wind" by Marie Hall Ets (1978), a story about wind pushing on common objects. | Question students about their experiences with air/wind. | Listen to "Gilberto and the Wind" story about the wind pushing on things common to students' daily experiences as they share their stories. |
| Share conclusion that air can make things float unless the object is too heavy. | Review prior investigation with focus on force as push/pull and air can apply a force to objects. | Share thinking and observations about air interacting with objects. |
| Follow along whole class as teacher shows how to make parachutes individually. | Direct students to construct parachutes. | Follow visual model to construct physical model in pairs independently. |
| Make predictions about what will happen to the parachutes with changes in weight (1 to 5 paper clips attached). | Use process skill of prediction including rationale/explanation. | Discuss how air will make parachute behave with various numbers of paper clips. |
| Answer teacher-led questions about results and use target vocabulary. | Introduce variables, fair test by changing the amount of weight on the parachute and the reason for timing the descent. | Predict, compare, observe, and communicate findings from parachute with one clip attached and with five clips attached. |
| | Communication of investigation findings using illustration and writing. | Write and draw results, label drawing, explain results using evidence. |

Appendix 1

Initial Teacher Survey

1. By the end of this school year, how many years will you have been teaching altogether?

2. Do you have common planning time for yourself or at your grade level? Yes/No
3. How often do you have planning time? _____
4. How often do you have the following types of interactions with other teachers?
Select 1-4 in response to a, b, c, d below.
 1. Daily or almost daily
 2. 1-3 times per week
 3. 2 or 3 times per month
 4. Never or almost never
 - a) Discussions about how to teach a particular concept
 - b) Working on preparing instructional materials
 - c) Visits to another teacher's classroom to observe his/her teaching
 - d) Informal observations of my classroom by another teacher
5. Provide your opinion about each of the following statements using the 1-5 scale below.
 1. Strongly Agree
 2. Agree
 3. No Opinion
 4. Disagree
 5. Strongly Disagree
 - a) Students learn science best with students of similar abilities.
 - b) I feel supported to try new ideas in teaching science.
 - c) Teachers in this school have a shared/common vision for science teaching and learning.
 - d) I have time during the school day/week to work with peers on science curriculum.
 - e) I enjoy teaching science.
6. Please rate the importance of each of the following strategies in teaching science using the 1-5 scale below.
 1. Extremely Important
 2. Very Important
 3. Important
 4. Somewhat Important
 5. Not Very Important

- a) Students writing descriptions of their reasoning
 - b) Investigative activities that include data collection and analysis
 - c) Whole-class discussions during which the teacher talks less than the students
 - d) Presentation of new information that is deliberately based on students' prior knowledge and conceptions
 - e) Using computers and/or other instructional technology to support deep conceptual understanding
 - f) Students gathering information to answer their own questions
 - g) Having students work in groups, receiving one grade per group
 - h) Using a variety of assessment techniques, e.g. multiple choice tests, portfolios, projects, etc.
 - i) Use of science standards (RI Science GSEs, National Science Education Standards, and Benchmarks for Science Literacy)
6. What grade level(s) are you currently teaching? (circle responses)
a) Pre-K b) K c) 1 d) 2 e) 3 d) 4 e) 5 f) 6
7. How often do you teach science:
a) every day b) 2-3 times weekly c) twice monthly or less d) not at all
8. What science content did you teach this year? (select all that apply)
a) LIFE b) EARTH & SPACE c) PHYSICAL SCIENCE d) SCIENCE PROCESS
9. When was your last professional development in science?
a) 1-2 years ago b) 3-4 years ago c) more than 4 years ago d) not applicable
10. Describe what you need in order to teach science.

Resources: TIMMS & Horizon Research, Inc.

Appendix 2

LS Workshop Feedback Form

Please share your feedback from today's professional development. Thank you.

Response Scale

1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5= strongly agree

| Select the best response for each indicator below. | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| The workshop content was useful. | | | | | |
| The workshop presenters were prepared. | | | | | |
| The workshop was informative and useful. | | | | | |
| The PD topics addressed my curriculum concerns. | | | | | |
| The experiences from the workshop will positively impact my teaching of science. | | | | | |
| The refreshments/food and environment were adequate. | | | | | |

What worked for you today?

What could have improved the workshop experience for you?

Appendix 3

Project Success Teacher Participants Feedback on Professional Development Workshops and Lesson Studies

Part I: Workshops

| Workshop Dates | Workshop Content |
|--|---|
| June 24 and 27, 2011 (Pawtucket) | <ul style="list-style-type: none"> • Comparison of various hands-on approaches (building tops activity) • Process Skills (6 short activities to explore different process skills) • Questioning (Ice Balloon activity) |
| November 3 and 10, 2011 (North Providence) | |

| Workshop Dates | Workshop Content |
|--|---|
| December 1 and 8, 2011- Both districts | <ul style="list-style-type: none"> • Introduction of the Project SUCCESS website: Building an online learning community • Different View of formative assessment (formative assessment cycle) • Science Notebooks: structure & entries • Notebooks & NECAP- the alignment • Introduce the Lesson Study process |

| Workshop Dates | Workshop Content |
|----------------------------------|--|
| January 19, 2012- Both districts | <ul style="list-style-type: none"> • How to assess students' development of science process skills • Lesson study planning |

1. How have the workshops you attended impacted your science teaching? Describe the changes that you have made as a result of your workshop experiences. [Use as much space as you need for your answer.]

2. Did the workshops address your needs in science teaching? What other topics that you would like to explore in the future workshops? [Use as much space as you need for your answer.]

Part II: Lesson Study

3. The lesson study cycle is composed of four phases: goal-setting and planning, lesson implementation, follow-up discussion after the first lesson implementation, and refining and re-teaching the lesson. Reflecting on your participation in this process, what are the benefits and challenges that you have experienced? [Use as much space as you need for your answer.]
4. How has the lesson study process impacted your science teaching? Describe the changes that you have made as a result of your lesson study experiences. If possible, please provide sample student work in either electronic or hard copy (e.g., science notebook entries including written entries and labeled diagrams; completed worksheets; pictures of students' product) [Use as much space as you need for your answer.]
5. What suggestions do you have to improve the second round of lesson study? [Use as much space as you need for your answer.]

Appendix 4

LS Lesson Plan Template¹

GROUP ___: ___ GRADE SCIENCE LESSON

Date lesson will be taught:

Time lesson will begin:

Teacher Name:

Classroom #:

School name:

School address:

School telephone #:

Directions at the school (entrance and where to go):

iafor

Special instructions for Lesson Study Team:

GROUP ___: ___ GRADE SCIENCE LESSON

Date:

Grade:

Period and Location:

Instructor:

I. Background information

A. Goal of the Lesson Study Group:

B. Narrative Overview of Background Information:

C. RI GSE

II. Unit Information

A. Name of the unit:

B. Goal(s) of the unit:

C. How this lesson is related to the unit:

D. Instructional sequence for the unit:

III. Lesson Information & Pedagogy

A. Name of the study lesson:

B. Objective/s of the study lesson:

C. How this study lesson is related to the lesson study goal? What is the gap?

D. Process of the study lesson:

| | |
|---|-----------------------|
| Steps of the lesson: learning activities and key questions (and time allocation) | Observer Notes |
| | |
| Student activities/ expected student reactions or responses | Observer Notes |
| | |
| Teacher's response to student reactions / Things to remember | Observer Notes |
| | |
| Align Objective/s with Method(s) of Assessment | Observer notes |
| | |

E. Evaluation

F. Appendix

¹ Modified from the Sample Study Lesson Plan Format by the Lesson Study Research Group. http://www.tc.columbia.edu/lessonstudy/doc/Sample_Lesson_Plan_Format.pdf

A Distributed Coverage-based Connectivity Restoration in Wireless Sensor Networks

Shiow-Fen Hwang, Jing-Huang Yang, Wen-Lin Chao, Chyi-Ren Dow

Feng Chia University, Taiwan

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Abstract

In recent years, wireless sensor networks have been widely used in many real-life scenarios, and have become more and more important. However, network connectivity is necessary for sensor network applications. When some of sensor nodes fail (due to energy depletion or destruction), it will cause the network disconnected. How to restore network connectivity is very important.

Hence, in this paper we propose a Distributed Coverage-based Connectivity Restoration (DCCR) which just needs a few nodes to execute critical nodes detection; coverage rate, residual energy, distance and degree are also considered to choose a backup node. Then, to promote the coverage rate, a better location is searched for a backup node to move to. Finally, the simulation results demonstrate that our proposed scheme has good performance in terms of coverage rate and residual energy than DARA and NORAS.

Keyword : WSN, connectivity, coverage rate, critical nodes, restoration, backup node

I. INTRODUCTION

Wireless Sensor Networks consist of a large number of sensor nodes which execute the task in a special environment. These sensor nodes are capable of computing data, monitoring environment, collecting information and transferring data etc. In recent years, wireless sensor networks have been widely used in many applications such as monitoring the action in the battlefield, tracking wild animals in the natural environment and sensing temperature/humidity in the forest. Additionally, volcano monitoring, debris flow detection and disaster notification are also used widely.

How to use limited energy to implement tasks of sensor nodes in the specific area is an important issue. In general, the nodes communicate and coordinate to send the data in the connected network. When some of sensor nodes failed, it would cause the network disconnected and tasks failed possibly. Therefore, the network connectivity is very important in the application of wireless sensor networks. The environment is usually harsh or difficult for people to reach in wireless sensor network. Hence, the nodes must have the ability to recover network connectivity by itself when network is disconnected.

There are many studies in how to recover network connectivity when nodes fail in wireless sensor networks (e.g.[2-7][10][13-16]). However, most of the researches have to execute the critical node detection in advance. For example, K.Akkaya et al.[2] modified CDS[8] to get the algorithm of critical node detection; some of researchers directly utilized DFS[9] algorithm. However, they are not suitable for wireless sensor networks, which consist of the large number of nodes, because they have to keep topology information of entire networks. In addition, some critical node detection algorithms [11] are not efficient in a special topology although it only needs the local information.

The network connectivity restoration mechanisms will be triggered when the failure node is the critical node. N. Tamboli et al. [14] used neighbors of a failure node to recover the temporary connectivity. Nevertheless, the neighbor nodes moving excessively will cause energy depletion. In addition, it was not suitable for emergency events because the latency of data delivery would be long. M. Younis et al. [16] proposed that all nodes moved inward to the location of a failure node to recover connectivity. However, the drawbacks are that more sensor nodes moved and the coverage rate became worse. A. Alfadhly et al. [7] improved the problem of node's movement. But the coverage rate will be low. Most of researchers looked for a backup node to move to the location of the failure node. The selection of a backup node will affect the network performance. A.A. Abbasi et al. [5] proposed that when the network was divided into number of areas and a critical node failed, the backup node, which is close to the failure node was selected from the least number of nodes area. The premise of this situation is that every node knows all information of network topology. A.A. Abbasi et al. [3] proposed the node should be one hop neighbor with minimum degree of failure nodes to be backed up. If there are two or more backup nodes, it considers the closest one. But if the backup node is the critical node, it will initiate a series connectivity restoring processes. K. Vaidya et al. [15] avoided choosing the critical node and

took coverage rate, degree of node into account. Unfortunately, maybe it will not find any backup node in some special topology. However, the sensing energy of nodes is limited and are not considered by the above researchers. In addition, the coverage rate will affect the performance of the sensor nodes. Thus, we propose the DCCR to achieve the high coverage rate and restore connectivity in this paper.

The rest of this paper is organized as follows. Section II presents the design of our connectivity restoration. We evaluate the proposed scheme by simulations in Section III. Section IV concludes the paper.

II. NETWORK CONNECTIVITY RESTORATION

We describe our proposed scheme as follows: i. Critical node detection. ii. Choose the backup node. iii. The location a backup node moves to. iv. Maintenance mechanism.

i. Critical node detection

In this section, we propose the simple and effective critical node detection which just needs location information and executes when it needs to reduce energy consumption and control overhead.

First, the nodes execute the critical node algorithm and send the packet with different ID of its neighbors (ex: Packet(ID, TTL, Initial node)). The value of TTL will be decreased by one when a node receives the packet. The packet will be broadcasted to the one-hop neighbors if the value of TTL is not equal to zero. The node returns the packets to the initial node when it receives more than or equal to two different numbers of packets from some initial nodes. Finally, the initial node unites the packets when it receives all returned packets. If the union equals to the all initial ID, this node will be regarded as the non-critical node (the detail of algorithm is shown in Fig. 1). As shown in Fig. 2, node A sends the packets (ID={1, 2 and 3}) of its neighbors ({B, C and D}) and sets the value of TTL (TTL=2). The nodes (B, C and D) broadcast the packet to their one hop neighbors and set the new value of TTL (TTL = TTL -1) until the value of TTL equals zero. The node G receives two different ID of packets (2 and 3), then it returns the packets to initial node A. Finally, the node A determines that it is the critical node because the received packet ({2 and 3}) is not equal to the all initial ID ({1, 2, and 3}). In another example as shown in Fig. 3, nodes (E and F) receive two different packets ({1 and 2}, {2 and 3}), then each returns the packets to initial node A. Because the union of received packet ({1, 2, and 3}) equals to the all initial ID, hence, node A is the non-critical node. However, this method may have errors in the detection of critical node when there are large loops in the network. However, the critical node detection has more than 96% accurate rate when the value of TTL equals three ([10]). Therefore, we can modify the value of TTL to increase the accurate rate in different network size and applications.

```

-----
Critical-Detection ( u )
-----
1.  TTL = k ;
2.  i = 1 ;
3.  Initial node = { u } ;
    /* u sends a packet with a different ID to each of its
       1-hop neighbors  $N_1(u)$ , respectively */
4.  while  $N_1(u) \neq \emptyset$  do
5.    choose  $v \in N_1(u)$  ;
6.    ID = { i } ;
7.    u send Packet (ID, TTL, Initial node) to v ;
8.     $N_1(u) = N_1(u) - \{v\}$  ;
9.    i = i + 1 ;
10. end while
    /* broadcast the received packet to 1-hop neighbors and
       respond to the initial node if needed */
11. if node w received a Packet (ID, TTL, Initial node) then
12.   record the packet ;
13.   TTL = TTL - 1 ;
14.   if TTL  $\neq$  0 then
15.     broadcast Packet (ID, TTL, Initial node) to  $N_1(w)$  ;
16.   end if
17.   if w received two or more packets with the same Initial
18.     node then
19.     union their IDs and send to the Initial node ;
20.   end if
21. end if
    /* determine whether u is a critical node or not */
21. UID = the union of IDs of the packets with the initial node u
    and |ID|  $\geq$  2 ;
22. if |UID| =  $|N_1(u)|$  then
23.   critical( u ) = false ;
24. else
25.   critical( u ) = true ;
26. end if
-----
    
```

Fig. 1. Critical node detection algorithm.

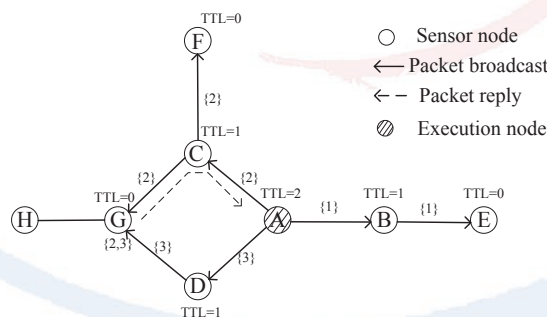


Fig. 2. The node A is the critical node.

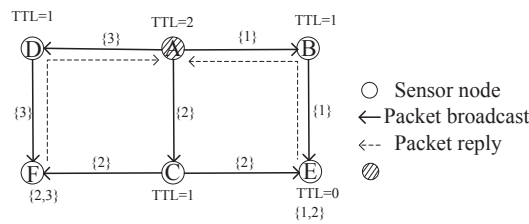


Fig. 3. The node A is the non-critical node.

ii. Choose the backup node

To avoid disconnection of network when nodes depleted energy, we set the threshold of energy. Therefore, we must choose a backup node which moves to some location (detail in next chapter) to maintain network connectivity when the sensor node is a critical node and its energy is below the threshold.

The purpose of choosing a backup node is to restore network connectivity. So, the critical node is not suitable to be the backup node, because it will cause a series connectivity restoring processes. Hence, in this paper the critical node is not regarded as the backup node. In addition, the coverage rate will affect the performance of the network. Therefore, we hope to select the backup node which influences the minimal coverage rate after moving. Moreover, the node's residual energy, distance from this node to failure node and degree are factors to select this node as a backup node or not. Based on the above observation and analysis, we set the weight value relative to a failure node. The high weight value stands for more probability of being the backup node.

Assume that the node u will be failed (call failure node). The weight function $w_u(v)$ that the node v to u is defined as follows:

$$w_u(v) = \begin{cases} -1 & , v \in \text{critical node} \\ \alpha A + \beta E + \gamma D + \delta K, \ominus & \text{non-critical node} \end{cases}$$

$$0 \leq \alpha, \beta, \gamma, \delta \leq 1, \quad \alpha + \beta + \gamma + \delta = 1$$

$$A = \frac{\text{the overlapped coverage of } v \text{ and } N_1(v)}{\text{the sensor area of } v}$$

$$E = \frac{\text{the residual energy of } v}{\text{the initial energy of } v}$$

$$D = \frac{\text{the transmission range of } v}{\text{the distance between } u \text{ and } v}$$

$$K = \frac{1}{\text{average degree of } v \text{ neighbor nodes}}$$

$\alpha, \beta, \gamma, \delta$ are parameters which are adjusted for different applications. By the above definitions, all the parameters are greater than or equal to zero, so the weight value of the node is greater or equal than zero when it is a non-critical node. Furthermore, the sensor node needs to execute critical node detection to determine whether it is the critical node before computing the weight values.

The sensor node u executes critical node detection when it will fail. The selection of the backup node mechanism will be triggered when the node u is a critical node. The detailed mechanism is as follows:

First, the sensor node u informs one hop neighbors of calculating the weight value, and chooses the sensor node p_1 with the highest weight value. If $w_u(p_1) \neq -1$ (p_1 is non-critical node), then the sensor node p_1 is the backup node for node u . If there are the same weight values in more than two nodes, the node with maximum ID will be the backup node. Otherwise, the sensor node u informs two hop neighbors to calculate the weight value and get their one hop neighbor information in the meanwhile. Then, the sensor node u chooses the backup node with the highest weight value. Similarly, the nodes with the maximum ID will be the backup node when they have the same weight value. If all of $w_u(p) = -1, p \in N_2(u)$, the node u uses the received information to execute DFS algorithm in the local to check if there is a circular loop or not. If the circular loop exists, the node u will correct the node misjudged as a critical node for the non-critical node. Then, it has to calculate the weight value again to find the new backup node. If there is no circular loop, the node u repeats the above steps to

find the backup node in three hop neighbors. Generally, the node usually can find the backup node, because it must exist the non-critical node in any graphics (the detail of algorithm is shown in Fig. 4). For example, in Fig. 5, node A notifies one hop neighbors to calculate the weight value and then selects the highest weight value node B as the backup node when node A will fail. In another example in Fig. 6, the node A notifies node (B, C, D and E) of its one hop neighbors to execute the critical node detection algorithm (TTL = 2) and calculate the weight value. The weight values of nodes (B, C, D and E) are -1, so they are the critical nodes. Then, node A informs the nodes (F, G, H and I) to calculate the weight value and their weight values are also -1. However, the node A has the nodes' (F, G, H and I) one hop neighbor information so that it can find there are two cycles (J-G-C-A-B-F-J and K-I-E-A-D-H-K) in the network as shown in Fig. 6(a). After updating the weight value, the node D is selected as the backup node because it has the highest weight value, as shown in Fig. 6(b).

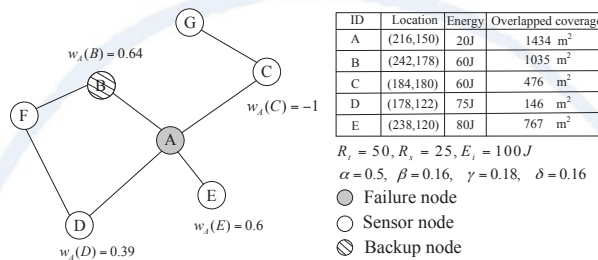


Fig. 5. The selection of backup node (there is the non-critical node in two hop neighbors).

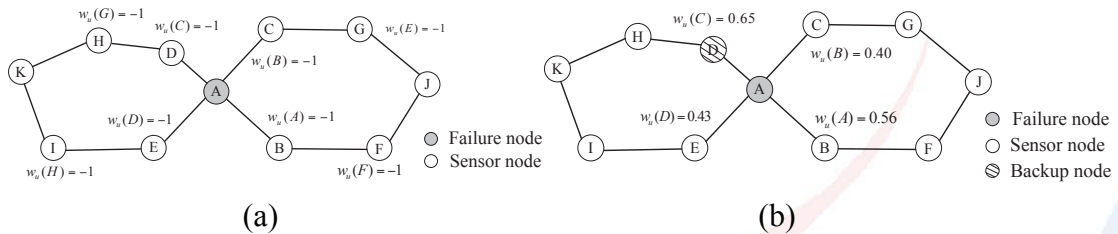


Fig. 6. The selection of backup node (the nodes is misstated to be critical node).

Weight (u, v)

S_v : the sensing area of v
 E_o : the initial energy of every node
 $E_r(v)$: the residual energy of v
 R_t : the transmission range
 $d(u, v)$: the distance between u and v
 $deg(v)$: the degree of v
 $\alpha, \beta, \gamma, \delta$: constants

1. $A = \frac{\bigcup_{w \in N_1(v)} (S_v \cap S_w)}{S_v}$;
 2. $E = \frac{E_r(v)}{E_o}$;
 3. $D = \frac{R_t}{d(u, v)}$;
 4. $K = \frac{|N_1(v)|}{\sum_{w \in N_1(v)} deg(w)}$;
 5. $w_u(v) = \alpha A + \beta E + \gamma D + \delta K$;
-

Backup-Node (u)

1. u broadcast a message that requires $w_u(v)$ to v for all $v \in N_1(u)$;
 2. $\forall v \in N_1(u)$: **Call** Critical-Detection (v) ;
 3. **if** critical(v) = true **then**
 4. $w_u(v) = -1$;
 5. **else Call** Weight (u, v);
 6. **end if**
 7. transmit $w_u(v)$ to u ;
 8. $w_u(g) = \max_{v \in N_1(u)} w_u(v)$;
 9. $i = 1$;
 10. **while** $w_u(g) = -1$ **do**
 11. $N = N_{i+1}(u) - N_i(u)$;
 12. u sends a message that requires $w_u(v)$ and $N_1(v)$ to v for all $v \in N$;
 13. $\forall v \in N$: **Call** Critical-Detection (v) ;
 14. **if** critical(v) = true **then**
 15. $w_u(v) = -1$;
 16. **else Call** Weight (u, v);
 17. **end if**
 18. transmit $w_u(v)$ and $N_1(v)$ to u ;
 19. $w_u(g) = \max_{v \in N} w_u(v)$;
 20. $i = i + 1$;
 21. **if** $w_u(g) = -1$ **then**
 22. **Call** DFS on $N_{i+1}(u)$;
 23. **if** there exist cycles C_1, C_2, \dots, C_m on $N_{i+1}(u)$ **then**
 24. let $x_j \in C_j$ with $d(x_j, u) = \min_{x \in C_j} d(x, u)$,
 $j = 1, 2, \dots, m$;
 25. $C_j' = C_j - \{x_j\}$, $j = 1, 2, \dots, m$;
 26. $F = \bigcup_{j=1}^m C_j'$;
 27. **Call** Weight (u, v) for all $v \in F$;
 28. $w_u(g) = \max_{v \in F} w_u(v)$;
 29. **end if**
 30. **end if**
 31. **end while**
 32. $Backup(u) = g$;
-

Fig. 4. Backup node algorithm

iii. The location a backup node moves to

The backup node usually moves to the location of a failure node to maintain the network connectivity. But we think that there is a better location to improve the coverage rate than the location of a failure node.

● Candidate locations

For example, in Fig. 7, the degree of failure node u is two and the backup node p is node u 's one hop neighbor (assume $N_1(u) = \{p, q\}$). Then, the location of w is the intersection of line \overline{pq} and circle q (the center is q and the radius is R_t). The location of u and w will be the candidate locations where the backup node may move to. Otherwise, the center of the circle is node u 's one hop neighbors, R_t is the radius, the location of intersection on the circle which are less or equal to R_t and u will be the candidate location where the backup node may move to, as shown in Fig. 8.

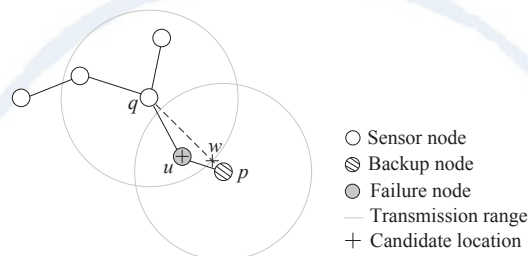


Fig. 7. The backup node p will move to the candidate locations (when $deg(u) = 2$ and $p \in N_1(u)$).

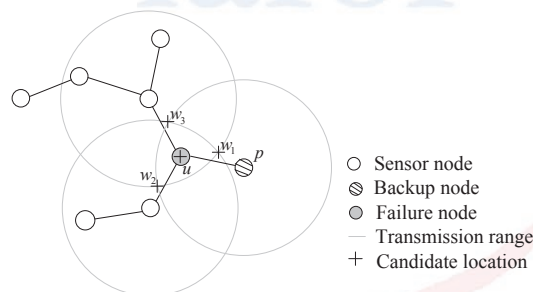


Fig. 8. The backup node p will move to the candidate locations (when $d(u) \neq 2$ or $p \in N_1(u), i \geq 2$).

● The better candidate locations

After calculating the candidate location, we calculate the lowest overlapped coverage with u 's one-hop neighbor to be the better candidate location. However, the coverage of node p and node u will be ignored when calculating the overlapped coverage (the detail of algorithm is shown in Fig. 9). For example, in Fig. 10, the candidate locations are w_1, w_2, w_3 and u . Then, w_1 is the better candidate location, because it has lowest overlapped coverage.

Better-Location for Backup node (u, p)

C_x : the circle with center x and radius R_t

1. $Backup(u) = p$
2. **if** $N_1(u) = \{p, q\}, q \neq p$ **then**
3. $w = C_q \cap qp$;
4. **else**
5. $W = \{w \mid w = C_y \cap C_z, \text{ for some } y, z \in N_1(u)$
 $\text{and } d(w, x) \leq R_t, \forall x \in N_1(u)\}$;
6. **end if**
7. Candidate = $W \cup \{u\}$;
8. $\forall w \in \text{Candidate} : A_w = \bigcup_{x \in N_1(u) - \{p\}} (S_x \cap S_w)$;
9. $A_{\bar{w}} = \min_{w \in \text{Candidate}} A_w$;
10. Better-Location = \bar{w} ;

Fig. 9. Better-Location for Backup node algorithm

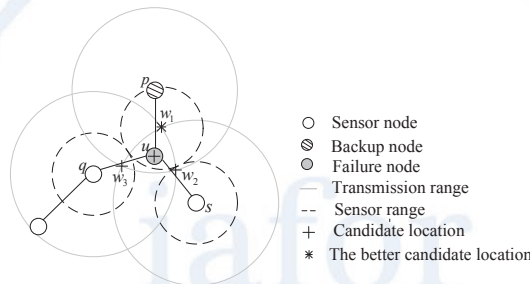


Fig. 10. The better candidate location.

● **The backup node moves to the better candidate locations**

When determining the better candidate location, the backup node p directly moves to the better candidate locations to restore network connectivity when the node p is one-hop neighbor of node u . Otherwise ($p \in N_k(u), k \geq 2$), assume that the shortest path between the node u and the node p is $u - p_1 - p_2 - \dots - p_{k-2} - p_{k-1} - p, p_i \in N_1(u), i = 1, 2, \dots, k - 1$. Then, when p_1 moves to the better candidate location, p_2 moves to p_1 until p moves to p_{k-1} . We can balance the energy consumption and restore the network connectivity by these steps. As shown in Fig. 11, the backup node p directly moves to the better candidate locations w_1 . As shown in Fig. 12, first, the node p_1 moves to better candidate locations and the node p moves to location of p_1 .

Nevertheless, the node u only uses one-hop neighbor to calculate the better candidate location. if the location where the backup node may move to is not the location of node u . it have to recalculate the overlapped coverage again. The backup node will move to the location of node u to get the better coverage when the overlapped coverage of a better candidate location is higher than the value $c(c > 0)$ of node u .

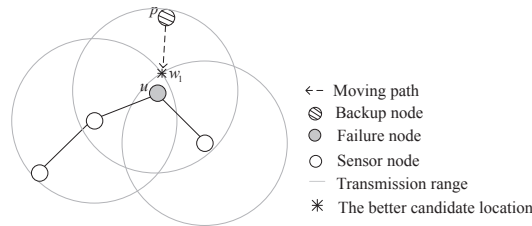


Fig. 11. The backup node is the failure node s 's one hop neighbor.

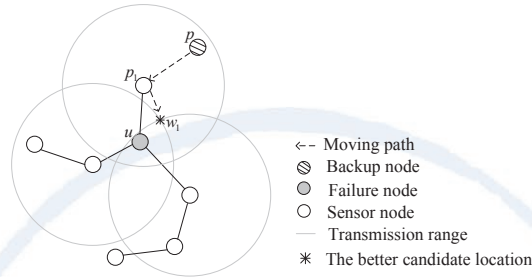


Fig. 12. The backup node is no failure node s 's one hop neighbor.

iv. Maintenance mechanism

The sensor node cannot find the backup node to restore networks connectivity on time when the critical node is damaged suddenly. We also propose a mechanism to solve this case.

The node u will detect whether it is the critical node or not when it finds out that its next forwarding node v is damaged (call damaged node). When node u is a non-critical node, it directly moves to the location of damaged node v , as shown in Fig. 13. In another case, the node u first triggers the network connectivity recovery mechanism to find the backup node p and the better candidate location w . Then, the node u moves to the location of the damaged node v and the backup node p moves to the locations of w , as shown in Fig. 14.

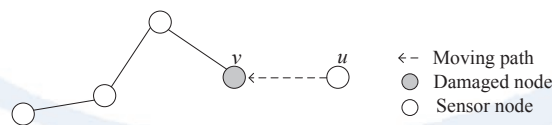


Fig. 13. The non-critical node moves to the location of the damaged node.

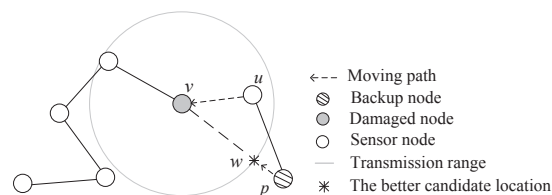


Fig. 14. The critical node finds the backup node and then moves to the location of the damaged node.

IV. EXPERIMENTAL EVALUATIONS

In this chapter we will describe the experimental simulation environment, as well as the basic parameter setting. We compare the proposed scheme DCCR with DARA[3] and NORAS[15] in terms of coverage rate, total travelled distance, control overhead, average residual energy and success rate.

We use the C# language to simulate the performance. The parameters are shown in Table 1 .

Table. 1. Simulation parameters.

| Parameter | Value |
|------------------------------------|--|
| Network size | 500×500 m ² , 750×750 m ² , 1000×1000 m ² , 1250×1250 m ² |
| Number of sensors | 20, 40, 60, 80, 100 |
| Transmission range | 50m, 75m, 100m, 125m |
| Sensor range | 50m |
| Energy of sensors | 50mJ, 125mJ, 200mJ(random) |
| $\alpha, \beta, \gamma, \delta, c$ | $\alpha:0.5, \beta:0.16, \gamma:0.17,$ $\delta:0.16, c:0.1$ |

- (1) **Total travelled distance:** the distance that all the nodes moved when restoring network connectivity.
- (2) **Reduction in field coverage:** the initial field coverage minus the recovery field coverage.
- (3) **Control overhead:** the message produced when restoring network connectivity.
- (4) **Average residual energy:** the average residual energy of moved node.
- (5) **Success rate:** the success rate of recovering network connectivity.

Fig. 15 and 16 compare the total travelled distance with different number of nodes and transmission range. Our proposed method DCCR has better performance than others because DCCR does not choose the critical node to be the backup node and it considers the distance between a backup node and a failure node.

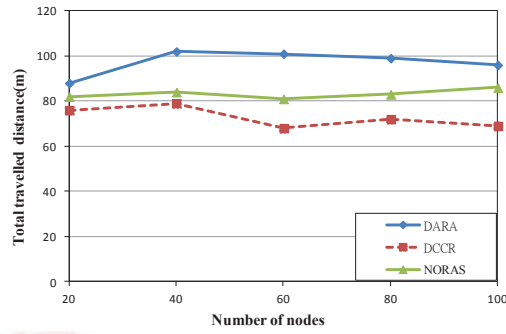


Fig. 15. The total travelled distance with different number of sensor nodes(size: 500*500, R_t : 100 m).

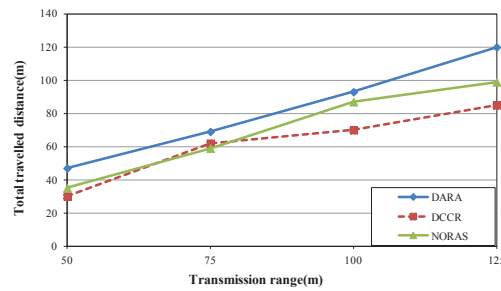


Fig. 16. The total travelled distance with different transmission range(size: 500*500, sensors: 60).

Fig. 17 and 18 compare the reduction in field coverage with different number of nodes and transmission range. The DARA does not have good performance, because it does not consider the node coverage when it chooses the backup node. Although both DCCR and NORAS consider the node coverage, DCCR has better performance than NORAS, because it selects the better location for backup node to move to.

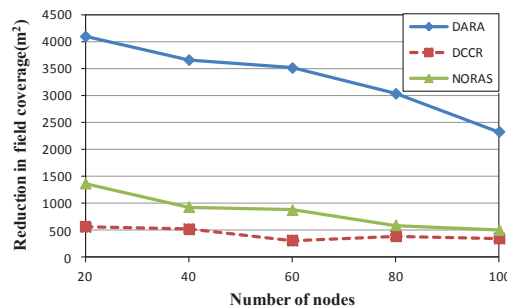


Fig. 17. The coverage rate with different number of sensor nodes(size: 500*500, R_t : 100 m)

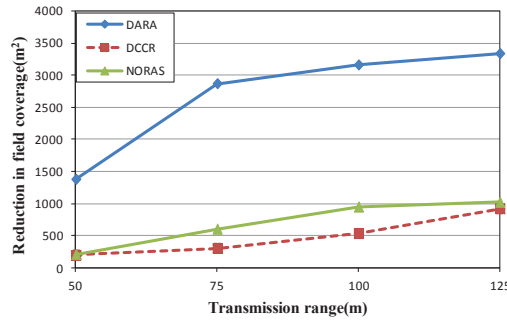


Fig. 18. The coverage rate with different transmission range(size: 500*500, sensors: 60).

Fig. 19 and 20 compare the control overhead with different number of nodes and transmission range. The NORAS has great number of control overhead because all nodes have to execute the critical node detection. However, the control overhead of DCCR is not much, because it only needs some parts of nodes to execute the critical node detection. The DARA does not execute the critical node detection, so the control overhead is less than DCCR.

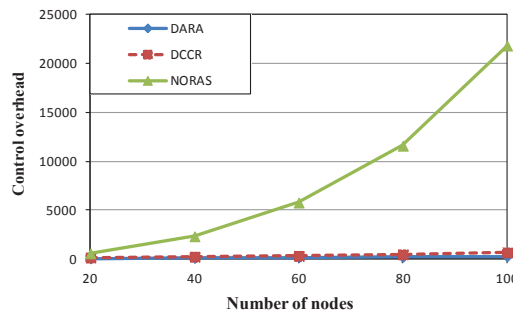


Fig. 19. The control overhead with different number of sensor nodes(size: 500*500, R_t : 100 m).

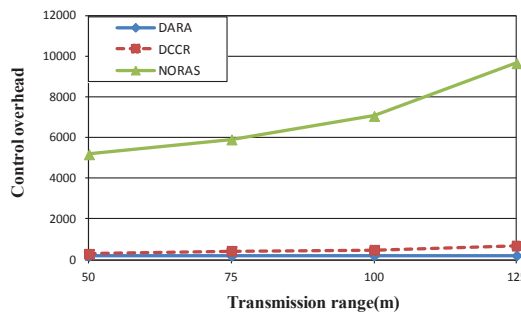


Fig. 20. The control overhead with different transmission range(size: 500*500, sensors: 60).

Fig. 21 and 22 compare the average residual energy with different number of nodes and transmission range. The DCCR has better performance than DARA and NORAS,

because it considers the node residual energy when it selects the backup node.

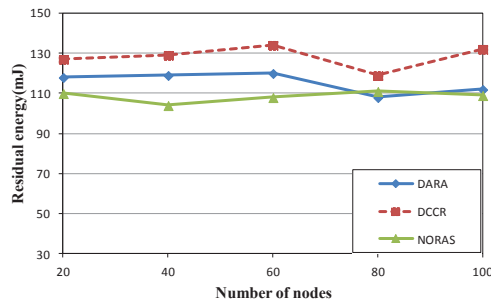


Fig. 21. The average residual energy with different number of sensor nodes(size: 500*500, R_t : 100 m).

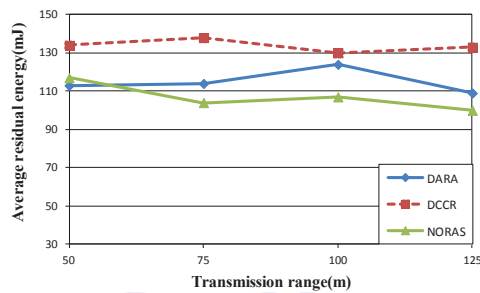


Fig. 22. The average residual energy with different transmission range(size: 500*500, sensors: 60).

Fig. 23 and 24 compare the success rate with different number of nodes and transmission range. The DCCR has better performance than DARA and NORAS, because it considers the node energy to avoid the node with less energy to be the backup node.

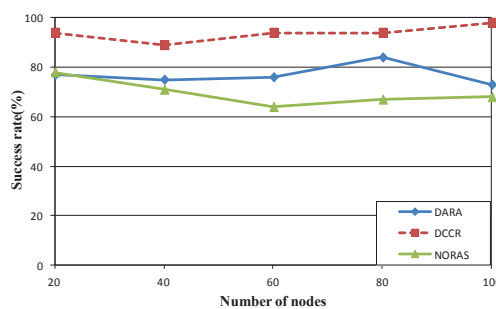


Fig. 23. The success rate with different number of sensor nodes(size: 500*500, R_t : 100 m).

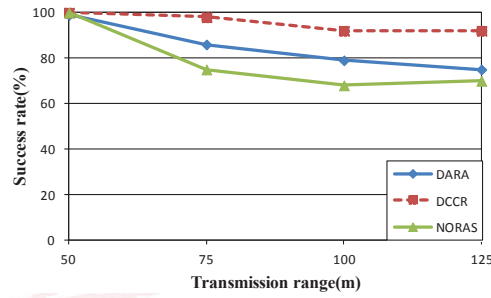


Fig. 24. The success rate with different transmission range(size: 500*500, sensors: 60).

Fig. 25-29 compare the different methods with 100m transmission range and different network size.

Fig. 25 compares the total travelled distance. The DCCR chooses a non-critical node to be the backup node which is near the failed node, so the network sizes does not affect total travelled distance. On the other hand, the DARA may choose the critical node to be the backup node, so the total travelled distance has increased with growing network size.

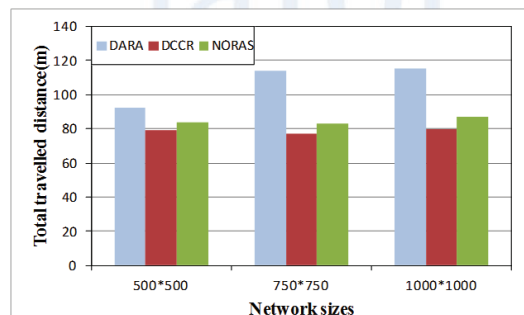


Fig. 25. The total travelled distance with different network sizes.

Fig. 26 and 27 compare the reduction field coverage and average residual energy. The values are not significantly changed in different network sizes, because the two elements are less influenced by network sizes.

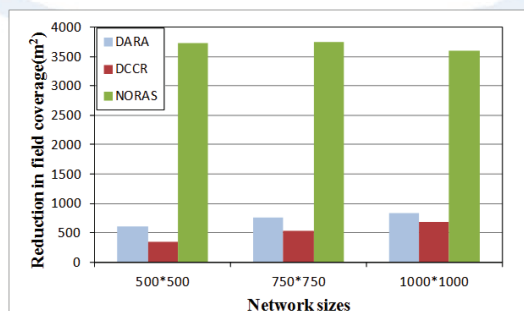


Fig. 26. The reduction field coverage with different network sizes.

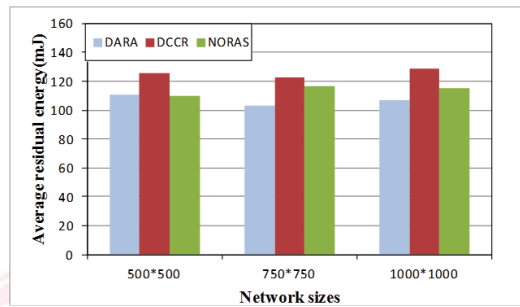


Fig. 27. The average reduction energy with different network sizes.

Fig. 28 compares the control overhead. The control overhead of NORAS increases a lot with growing network sizes. Therefore, we show DCCR and NORAS in Fig. 29. The control overhead of DARA increases with growing network sizes. However, the increase of DCCR is not obvious.

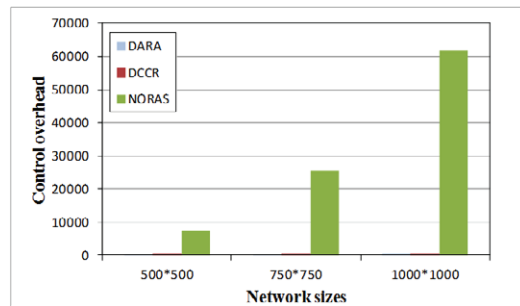


Fig. 28. The control overhead with different network sizes(DARA, DCCR and NORAS).

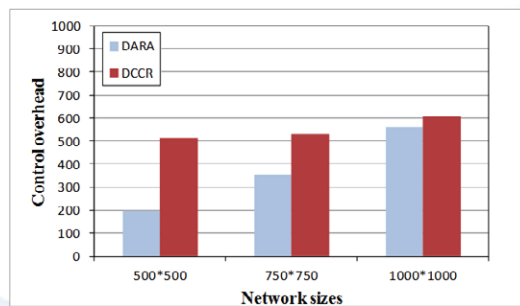


Fig. 29. The control overhead with different network sizes(DARA and DCCR).

Fig. 30-32 compare with DCCR in 100m transmission range and different parameters (α, β, γ). The simulation result shows that the coverage rate has improved when increasing the value α . Similarly, the average residual energy and total travelled distance are better when increasing β and γ . So, the users can adjust the parameters by themselves to meet the different demands.

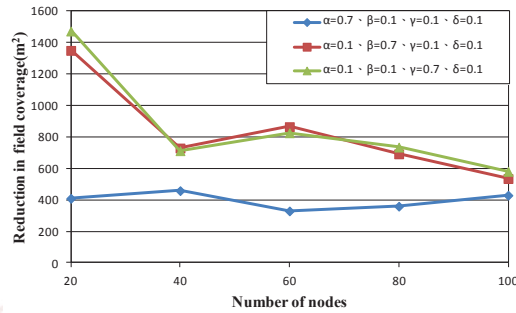


Fig. 30. The reduction in field coverage with different number of sensor nodes.

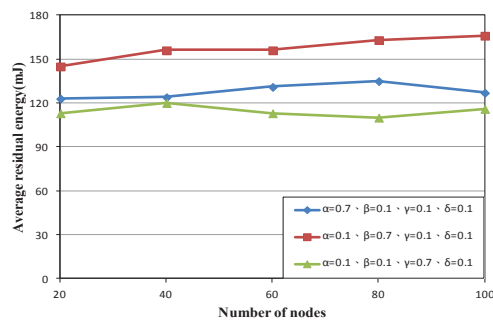


Fig. 31. The average reduction energy with different number of sensor nodes.

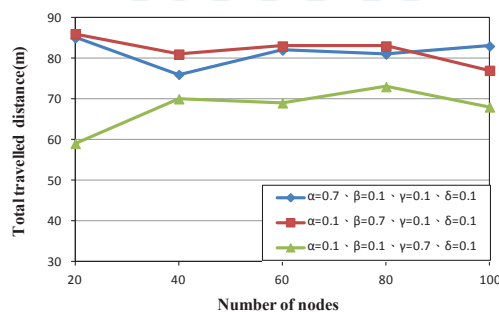


Fig. 32. The total travelled distance with different number of sensor nodes.

V. CONCLUSION

In this paper, we propose a Distributed Coverage-based Connectivity Restoration (DCCR). Firstly, we design the simple algorithm to detect the failure node which cause network partitioned. Second, the backup node takes many important factors into account, such as coverage rate, residual energy, travelled distance and the degree of node. Finally, the backup node will move to the better candidate location to restore network connectivity. Besides, we also propose the effective maintenance mechanism when a node fails suddenly. The simulation results demonstrate that our proposed scheme has good performance in terms of coverage rate、 residual energy than DARA and NORAS. Simultaneously, the total travelled distance has a good performance.

ACKNOWLEDGMENT

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Fish Amino Acid Efficiency in the Growth of Spirulina Platensis

Napakan Naikhon, Nichanun Udomsaksakul

Rajabhat Rajanagarindra University, Thailand

0308

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Abstract

This study looked at the efficiency of fish amino acid on the growth of *Spirulina platensis* in two samples of fish amino acid in five concentrations, i.e., 0, 0.5, 1.0, 1.5, and 2.0 %. The first sample was composed of fish and molasses in a 1:1 ratio; the second was 1:0.5. They were both allowed to ferment for 30 days. Acetic acid bacteria were absent in both samples, but lactic acid bacteria and yeast levels were fluctuated. These data were confirmed by gram's staining, visual analysis, and plate counts techniques. The quantity of microorganisms was found to decrease over the course of the study, whereas the second sample found that levels of lactic acid bacteria and yeast were higher than that of the first sample. Observations of optical density using a wavelength at 560 nm every three days for 21 days checked the culture for *S. platensis*. We found that optical density in the first sample increased to various concentrations, i.e., 1.4458, 1.2968, 0.9708, 1.2391 and 1.2507, respectively. The optical density of *S. platensis* in the second sample also increased to different concentrations, i.e., 1.7236, 1.6799, 1.3380, 1.4189 and 1.3335, respectively. Therefore, the best results for the cultivation of *S. platensis* came from a 0 % concentration of fish amino acid. We concluded that fish amino acid did not affect the production of *S. platensis*, whereas the growth of *S. platensis* was related to the concentrations of lactic acid bacteria and yeast.

Keywords: *Spirulina platensis*, fish amino acid, effective microorganisms, yeast, lactic acid,

INTRODUCTION

Spirulina platensis is a multicellular blue-green algae, which is classified as a member of Cyanobacteria. It is characterized by a helical shape of the filaments or trichomes. It is an autotrophic organism and reproduces by binary fission. The cell is consisted of 55-70% dry weight of proteins, essential fatty acids, vitamins, minerals, and carotenoids. It contains several nutrients, i.e., vitamin B complex, β -carotene, vitamin C, vitamin D, vitamin E, manganese, zinc, copper, iron, selenium, and γ -linolenic acid (Habib et al., 2008). *Spirulina* is normally harvested from the surface of lakes and ponds. It is an alternative nutrient source of food in some parts of Africa and Mexico, because it can be eaten in its natural form or added to other foods and beverages (Talaro, Cowan and Chess, 2009). It is a good gradient that used as a supplement of food for human and animals because it has no cellulose in its cell walls so it is very easily digested and absorbed by the alimentary cells (Sundaravalli, 2011). Moreover, it can be mixed and used in cosmetic products for the face and skin because there are vitamins A and D including phycocyanin and β -carotene, which are antioxidants (Tongsiri, 2013).

In Thailand, *Spirulina* was found in the Northeast by Mrs. Jiemjit Boonsom, a retired government officer, who was the first person that was interested in *Spirulina* and had given the Thai name "Klieo Thong" (Boonsom farm, 2013). *Spirulina* is found in fresh water with high pH, especially in wastewater from industry or activated pond (Peerapornpisal, 2006). There are several studies concerning the growth and utilization of *Spirulina*, i.e., using biological-treated swine wastewater for the cultivation of *S. platensis* (Mezzomo et al., 2010), while Andrade and Costa (2007) used molasses as an organic substrate for *S. platensis* cultivation. Pongpera and Boonnak (2012) used *S. platensis* for the treatment of wastewater from fermented rice noodle factory using. The aforementioned studies suggest that we can modify the cultivation of *Spirulina* to obtain the highest quantity. Moreover, the Thailand Institute of Scientific and Technological Research (TISTR) has been cooperated with Malee Sampran Public Company Limited in studying the cultivation of *Spirulina* using wastewater from fruit factories and yield a very good result (Manager Online, 2013). Thus, it is a bright prospect in the industry where *Spirulina* is a good choice to be used as a gradient to mix in human food and animal food. Additionally, it can diminish environmental pollution problems in wastewater and be able to cultivate with shrimp.

In Thailand there are many aquatic animals in the rivers, especially fish, where fishes are an important component for Thai food such as Spicy and Sour Curry or Gang Som, Tom Yum (fish soup flavored with lemongrass and lime), rice congee mixed with fishes, dried fishes on skewers and many different kinds of preserved fishes. Some parts of fish after cooking cannot be consumed. The fermentation of fishes will solve a problem about the pollution from remaining fish.

In this study, fish amino acid is defined as the fluid from the fermentation of fishes via an anaerobic process. The facultative microorganisms transform complex organic molecules into simple organic compounds that can be absorbed directly by plants (Higa and Parr, 1994). Fish amino acid is composed of proteins (amino acid), carbohydrate, fat and minerals, which are an important food for microorganisms in soil. Amino acid in fish will be changed to form as a nitrogen source for plants. Nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, zinc and copper can be found in fish amino acid (Tonsho, 2006). However, fermentation is a metabolic process that produces ethanol, acetic acid or lactic acid by microorganisms such as yeast and bacteria (Wikipedia, 2013).

The main objective of this study was aimed at determining types of microorganisms in fish amino acid and concentrations of fish amino acid that enhance the growth of *S. platensis*.

MATERIALS AND METHODS

Fish amino acid

Two samples of fish amino acid were used for the cultivation of *S. platensis*. The first sample was a mixture of fish and molasses in a 1:1 ratio. The second sample was a mixture of fish and molasses in a 1:0.5 ratio. They were allowed to ferment for thirty days, and samples were used to determine for the type of microorganisms at every ten days interval. The medium that was used for culturing the microorganisms was MRS (de Man, Rogosa and Sharpe) supplemented with 0.5% CaCO₃, GEAM (Glucose Ethanol Acetic Medium) and PDA (Potato Dextrose Agar). The samples were determined for the type of microorganisms by using gram's staining, visual analysis, and plate counts techniques.

Culture medium of *S. platensis*

The culture medium for cultivation of *S. platensis* was composed of NaHCO₃, K₂PO₄, NaNO₃ and NPK 16:16:16 in distilled water. NaOH was subsequently used to adjust the pH of the medium to the level of 9 - 11. Two samples of fish amino acid were used to mix with the culture medium. At the beginning of the cultivation, fish amino acid were diluted 1:1000 and used in five consecutive concentrations, i.e., 0, 0.5, 1.0, 1.5, and 2.0 %.

Analysis the growth of *S. platensis*

S. platensis was cultivated for twenty-one days in the laboratory. The growth of *S. platensis* was subsequently checked by using the optical density of the culture at 560 nm wavelength every three days.

RESULTS

Lactic acid bacteria were found in fish amino acid in MRS medium supplemented with 0.5% CaCO₃, which was stained as a gram-positive rod. There was a clear zone around the colony. Yeast was found in PDA medium. There was no growth of acetic acid bacteria on the GEAM medium. Acetic acid bacteria were not detected in GEAM for both samples (Table 1). From the results, the quantity of microorganisms was found to decrease over the course of the study and it was found that levels of lactic acid bacteria and yeast in the second sample were higher than that of the first sample.

Table 1. Bacteria and yeast that found in fish amino acid from culture mediums at 37 °C.

| Time (Days) | Type of microorganisms | Fish amino acid I | | | Fish amino acid II | | |
|-------------|------------------------|----------------------|-------|----------------------|----------------------|-------|----------------------|
| | | MRS | GEA M | PDA | MRS | GEA M | PDA |
| 10 | Bacteria | 9.2x10 ⁷ | - | - | 2.28x10 ⁸ | - | - |
| | Yeast | - | - | 3.2x10 ⁴ | - | - | 1.51x10 ⁵ |
| 20 | Bacteria | 1.22x10 ⁶ | - | - | 2.73x10 ⁶ | - | - |
| | Yeast | - | - | 2.9x10 ⁴ | - | - | 1.02x10 ⁵ |
| 30 | Bacteria | 6x10 ³ | - | - | 9.9x10 ³ | - | - |
| | Yeast | - | - | 6.15x10 ³ | - | - | 7.9x10 ⁴ |

Table 2. An optical density of *S. platensis* using a wavelength at 560 nm every three days in fish amino acid I.

| Time (Days) | Concentrations of fish amino acid I (%) | | | | |
|-------------|---|---------------|---------------|---------------|---------------|
| | 0 | 0.5 | 1.0 | 1.5 | 2.0 |
| 0 | 0.0470±0.0023 | 0.0401±0.0081 | 0.0420±0.0095 | 0.0478±0.0030 | 0.0465±0.0024 |
| 3 | 0.0753±0.0082 | 0.0581±0.0037 | 0.0525±0.0027 | 0.0538±0.0030 | 0.0600±0.0037 |
| 6 | 0.2478±0.0082 | 0.2388±0.0239 | 0.1730±0.0192 | 0.1888±0.0056 | 0.1960±0.0060 |
| 9 | 0.3333±0.0095 | 0.3271±0.0410 | 0.2343±0.0263 | 0.2542±0.0073 | 0.2656±0.0140 |
| 12 | 0.5122±0.0296 | 0.4698±0.0594 | 0.3638±0.0424 | 0.3961±0.0373 | 0.3641±0.0099 |
| 15 | 0.7455±0.0355 | 0.6969±0.1004 | 0.4981±0.0683 | 0.5562±0.0338 | 0.5230±0.0235 |
| 18 | 0.8639±0.0358 | 0.7955±0.1250 | 0.5773±0.0720 | 0.6590±0.0348 | 0.6402±0.0215 |
| 21 | 1.1106±0.0516 | 1.0399±0.1771 | 0.7661±0.0950 | 0.9083±0.0451 | 0.9206±0.0054 |

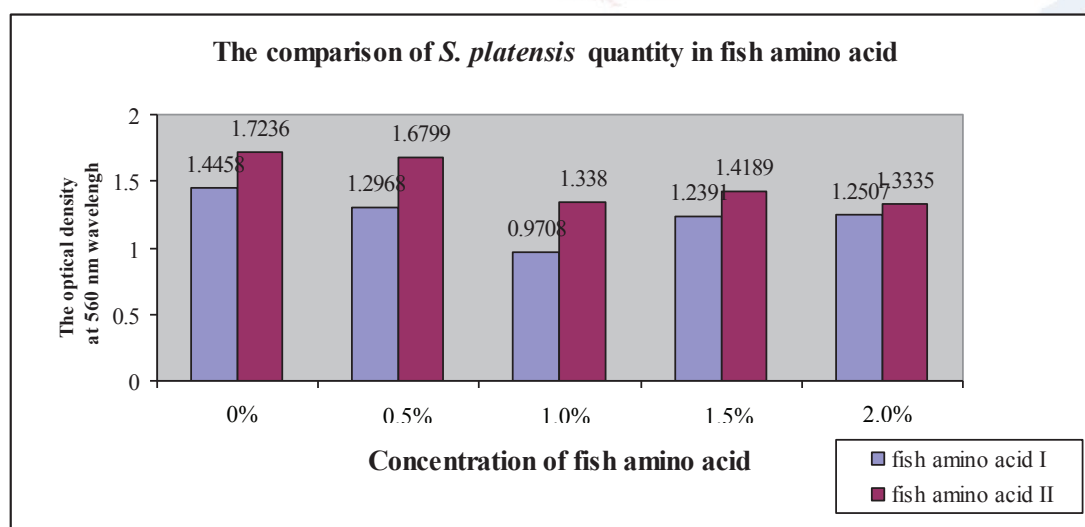
The optical density of *S. platensis* in the first sample was increased to various concentrations, i.e., 1.4458, 1.2968, 0.9708, 1.2391 and 1.2507, respectively (Table 2). The optical density of *S. platensis* in the second sample also increased to various concentrations, i.e., 1.7236, 1.6799, 1.3380, 1.4189 and 1.3335, respectively (Table 3)

Table 3. Showing the optical density of *S. platensis* using a wavelength at 560 nm every three days in fish amino acid II.

| Time (Days) | Concentrations of fish amino acid II (%) | | | | |
|-------------|--|-------------------|-------------------|-------------------|-------------------|
| | 0 | 0.5 | 1.0 | 1.5 | 2.0 |
| 0 | 0.0722±0.001 3 | 0.1032±0.006 7 | 0.0736±0.002 2 | 0.1050±0.006 0 | 0.1056±0.000 5 |
| 3 | 0.1836±0.001 2 | 0.1385±0.008 5 | 0.1648±0.003 2 | 0.1809±0.004 8 | 0.1659±0.001 6 |
| 6 | 0.3728±0.034 8 | 0.3374±0.023 3 | 0.2946±0.015 9 | 0.3286±0.014 8 | 0.3008±0.000 5 |
| 9 | 0.4097±0.001 1 | 0.4106±0.016 1 | 0.3390±0.011 5 | 0.3814±0.025 9 | 0.3489±0.021 1 |
| 12 | 0.6544±0.007 7 | 0.6858±0.016 4 | 0.5903±0.019 0 | 0.6646±0.058 5 | 0.5696±0.026 5 |
| 15 | 0.8915±0.148 6 | 0.7967±0.028 1 | 0.6997±0.023 4 | 0.8047±0.107 9 | 0.6580±0.023 0 |
| 18 | 1.4305±0.388 2 | 1.3749±0.204 6 | 1.1804±0.048 5 | 1.2125±0.187 6 | 1.0983±0.099 5 |
| 21 | 1.7958±0.297 3 | 1.7831±0.267 7 | 1.4116±0.044 7 | 1.5239±0.259 6 | 1.4391±0.107 1 |

Results of the quantity of *S. platensis* in the second sample of fish amino acids I, and II are summarized in Fig. 1. *S. platensis* grew in the fish amino acid II sample better than the first sample. The best results for the cultivation of *S. platensis* came from a 0 % concentration of fish amino acid.

Fig. 1. The comparison of *S. platensis* quantity in fish amino acids I, and II during 21 days interval.



DISCUSSION AND CONCLUSION

The study on fish amino acid found that lactic acid bacteria and yeast but acetic acid bacteria were absent because both lactic acid bacteria and yeast were able to use carbohydrates, molasses, in the process and converted to their products. Lactic acid bacteria converted carbohydrate to lactic acid, while yeast converted carbohydrate to alcohol, whereas acetic acid bacteria convert alcohol to acetic acid (Wikipedia, 2013). Thus, the quantity of alcohol from yeast might be less than that converted to acetic acid. In this study, lactic acid bacteria and yeast were found in the second sample more than the first sample similarly with cultivation of *S. platensis* that grew in the second sample more than the first sample.

From the results of the cultivation of *S. platensis*, we observed that a 0 % concentration of fish amino acid was better than others on account of the fact that there were no fish amino acids in the culture medium. Therefore, fish amino acid decreases the growth rate of *S. platensis* because there is the reduction in pH ranges of culture medium and turbidity. However, *S. platensis* could grow in fish amino acid eventhough it did not get the best results. Results are agreed with the study of Cheunbarn and Peerapornpisal (2010), which shows that *S. platensis* is able to grow in wastewater derived from anaerobically treated-swine wastewater, but only with low dilution. This is probably because the algae is unable to adapt itself due to high substances, with high color and turbidity resulting in affecting the rate of photosynthesis in algae. Our results are opposed to those of Rangel et al. (2004), which is found that the use of urea as a nitrogen source that utilizing fed-batch process can be considered as a promising alternative biomass and chlorophyll production. Furthermore, Ungsethaphand et al. (2009) were able to use dry chicken manure supplemented with urea and sodium bicarbonate to cultivate *S. platensis* for reduces cost of medium, while Mezzomo et al. (2010) found that the cultivation of microalgae, *S. platensis* in biological treated swine wastewater demonstrated the capability of biomass production, which suggested that it could use microalgae as an alternative way to assist in the swine culture wastewater treatment resulting in reducing the environmental impact caused by their pollutants.

Although, fish amino acid does not rapidly enhance the growth of *S. platensis*, it does not make *S. platensis* immediately drop in biomass production. The amount of lactic acid bacteria and yeast are related to the growth of *S. platensis*. However, using fish amino acid does not attain suitable conditions for increasing the population of *S. platensis*.

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The Tendency of Spatial Layout Changes in Design of Terraced Houses in Melaka Tengah, Malaysia

Nurdalila Saji, Fuziah Ibrahim

Universiti Sains Malaysia, Malaysia

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Abstract

Terraced house modification has been a trend in recent years. It has been done excessively either with or without consent from the local authorities. However, there are no proper steps taken to overcome this problem. The reason is that terraced house modification has become a necessity for the resident to cater for the growing number of household. Therefore, a research is done in studying the level of modification and the household's preference in terms of economy, comfortability, necessity, psychology and aesthetic. The site of study is selected in Melaka Tengah. The reason for choosing Melaka Tengah as site of study is because no research on terraced house modification had been done in the area before. The data collection technique includes observation, questionnaire surveys and unstructured interview. The site of study includes Taman Sungai Udang, Taman Seri Jati, Taman Seri Cempaka, Taman Paya Rumput Utama, Taman Merbok, Taman Desa Duyung, Taman Cheng Jaya, Taman Bukit Rambai, Taman Aman and Taman Alai Perdana. The data is analysed using descriptive statistical analysis to obtain the demographic profile of the respondents. Chi-Square tests are used to analyse reasons for modification and its relationship with the respondent's profile. Result from the study shows the reason for modification is influenced by number of household, income, race, number of years residing, number of bedrooms, floor plan status awareness, and house position. From the result of the analysis, the researcher suggested a flexible housing design among others as a step to minimise modification.

Key Words: Modification, Terraced House, Changes in design

Introduction

Terrace houses are a row of identical or mirror-image houses share side walls. The first and last of these houses is called an end terrace, or end house or corner house, usually larger than those houses in the middle. Terraced house normally have open spaces at the front and back. Each row may consist of 10 to 12 units depending on the width of the house, as it have to comply with the regulations of the Fire Services Department that each row shall not exceed 130 feet. (Malaysia My Second Home, 2013)

The disadvantages of mass houses are often designed for a typical user, with typical abilities in mind, for the typical needs of today, without considering the future changes of the user (Baldwin and Tomita 2007) and often, the housing design is the lack of social and cultural considerations and insensitive to local context (Parva and Dola, 2007; Hashim et al. 2009). Mismatch between the current house and the residents' needs, preference and aspiration may lead to adjustment of aspirations, or adjustment of the current house through modification or relocation (Baum and Hassan 1999). Tipple (1996) claimed that housing transformation could contribute to sustainable development in the urban and rural environments. He focused on architectural opportunities in terms that housing transformation that involves occupiers in their houses is capable to increase households' affection at their houses. Therefore, the sense of belonging is higher in transformed houses and the residents of such houses have better feelings when living in their houses (Tipple 1996).

Literature Review

Modification in general

Akalin et al. (2008) grouped housing modification into two different types that are intrinsic, which relates to spatial and technical functions, and extrinsic, which refers to aesthetic act. Marcus & Sarkissian (1986) suggested design guidelines which promotes and encourages residential personalisation through territorial expression, added privacy, articulated façade, personal additions, component replacement and entry personalisation.

Abu-Ghazze (2000) defined personalisation as a way people modify their environment to make it distinctly theirs. At the same time high density environments increase the need for privacy which increases the need people feel to mark their territory and to create more personalized markings (Abu-Ghazze, 2000). According to Oulasvirta & Blom (2007), personalisation is a normal behaviour in human activity such as decorating or beautifying, altering, modifying and adapting. Personalisation occurs when there is any modification or addition to the exterior part of the house by the residents, including the garage and the front or back yard (Marcus & Sarkissian 1986)

Modification in terms of aesthetic reasons

Accordingly Saruwono (2010) aptly suggests that the beauty of renovation is that people are free to express themselves, communicating with the outside world about who they are and that people did what they think best from the individual point of view which is supposed to lead a more desirable living environment. The renovations done involving the front area to

the back area, from the living area to the kitchen and the scale of the renovation are both major and minor. The different type of renovation done showed us that the people are getting more alert and attentive about design aspects and they wanted a better house to live their lives. (Jamel, M. A & Utaberta, 2011) for the side portion terrace house modifications, besides for personal needs, the modifications are also for aesthetic appeal. (Sazally, 2012)

Individual aesthetic preferences and the taste for “style” vary greatly. Designers make design choices based on their own preferences or that of the developers’. At times, with the intention to appear attractive, some buildings are designed with exaggerated style which is not connected to the visions of consumers (Rukwaro & Olima 2003).

Modification in terms of economic reasons

According to Apolonija in Zvirblyte, 2011, a renovation costs a lot of money, hence the quality of life has to be improved and the energy bills lowered considerably. There were some examples, when some communities have renovated their houses, but the works were done not properly- some significant defects appeared later on and the community couldn’t solve this without paing extra money, even though the guarantee term hasn’t expired yet, but the company that had done all those works got bankrupted. (Zvirblyte, 2011)

Recession may cause distress and hold back plans from renovating the house. But the homeowner can actually reverse that mood into a brighter one if they knew how to take advantage of the situation. (McKenna, 2013) A house renovation for terrace house has become a trend in Malaysia due to sustained economic development and the increase of the living standard. Most Malaysians renovate their homes to increase the value of the property. (Ahmad, 2011)

Modification in terms of psychological reasons

Housing may be viewed from different perspectives. Authors including Egalus (1980), Mickelson (1977) classify housing into physical, social and psychological dimensions. User’s satisfaction in a house, although dependent on economic or social status, is related to the gratification of the user’s higher psychological expectations such as intimacy, love, sense of belonging and freedom. (Zavei, 2012) It is important therefore that investigation into a person’s mass housing preferences be undertaken in two important phases of home making, namely, the design phase of the initial housing units, and the future personalization works by the occupants. (Zavei, 2012)

Mobility, as one of most highlighted characteristics of the modern lifestyle, leads to “placelessness,” which causes lack of place attachment (Tall, 2007; Fullilove, 2004; Norberg-Schulz, 1988). Place attachment is one of the most influential factors in humans’ psychological health, and is therefore powerful in constructing an individual’s identity (Tuan, 2007, Oliver, 2006). Also, individualization or privatization is another phenomenon of the modern community leading to an individual feeling less attachment to the community, thereby weakening their sense of responsibility to society (Utekhin, 2007).

People are also more exposed to up-to-date architecture and appealing interior design and many see their house as an opportunity for property investment. Any alteration works should overcome or prevent adverse psychological and physiological reactions to occupants of the property. (Isnin, 2012)

Modification in terms of necessity

Occupants living in older buildings, most of which were built over 35 years ago, are more likely to undertake a major renovation on their homes (Nair, Gustavsson, & Mahapatra, 2010). Consequently, the functionality of existing residential buildings is becoming increasingly insufficient for meeting occupants' need, with the kitchen, dining area and clothes-drying space being typically unsatisfactory (Salleh, 2008). Renovation is one of the most direct ways to eliminate functional deficiencies. (Zhang, 2012)

In general the housing modifications were to provide convenience for daily activities, privacy and social interaction. (Rahim, 2012) Housing modification is an on-going effort to improve the physical living environment and varied according to individual family needs and most modifications were undertaken at the stage of family life cycle when the children reached adolescence, a reflection of the importance to provide privacy in term of separate sleeping and spaces for increased. (Rahim, 2012)

Modification in terms of comfortability

The demand for comfort conditions in buildings are significantly increased as a result of exposure to uncomfortable outdoors (Ahmed, 2003). Most Malaysians make the house more comfortable to live by adding the area of the space, a new section in the house for example adding the number of the rooms, changing the colour of the house and increasing the security level of the house by fixing grilles at the entrance of opening in the house. (Ahmad, 2011)

The home must be in a state which is suitable to live in. This can be achieved through responsible design, according to relevant guidelines and regulations set by the authority, ensuring the health and safety of the occupants. Homes which do not meet the minimum standards will result in discomfort and eventually create stress and dissatisfaction among the users. (Vischer, 2007)

Methodology

The double storey terraced houses comprised the majority of house type built and the most popular form landed property in the country. 511 houses were selected randomly from a developed urban housing development in Melaka Tengah. This includes Taman Sungai Udang, Taman Seri Jati, Taman Seri Cempaka, Taman Paya Rumput Utama, Taman Merbok, Taman Desa Duyung, Taman Cheng Jaya, Taman Bukit Rambai, Taman Aman and Taman Alai Perdana. The objective of this study is to examine the reasons behind terraced housing modification and the factors influencing the modification. As only homeowners may make physical modification to the house, owner-occupied properties were preferred (Marcus &

Sarkissian, 1986), if the modified house is a rental property; the information of the house was acquired using the information given by the tenant. The houses were selected through observation which has been made by the researcher to select the houses that has been modified. Owner-occupied houses will allow the researcher to observe the physical trace and study how the spaces in the homes were used. Another important selection criterion is that the property must have been modified or renovated. Unmodified homes were filtered out by observation. It was decided that the best method for this study was observation and informal interview. A standardized format sheet was devised to record the observation process. It covers various attributes of the house ranging from spatial modification, materials and features modification. Informal interview was found to be very informative as the homeowner will not only give a brief history and descriptions of the modifications but also give glimpse into their life, how family activities are carried out and how do they attend to the guest. The descriptions were all digitally recorded to assist the researcher in analysis. Photographs of any physical changes made to the home were also taken whenever allowed.

Demography

Table 1

| Taman (Housing Area) | Frequency | Percent |
|-----------------------------|------------------|----------------|
| 1. Sungai Udang | 38 | 7.4 |
| 2. Seri Jati | 51 | 10 |
| 3. Seri Cempaka | 46 | 9 |
| 4. Paya Rumpit Utama | 58 | 11.4 |
| 5. Merbok | 68 | 13.3 |
| 6. Desa Duyung | 57 | 11.2 |
| 7. Cheng Jaya | 49 | 9.6 |
| 8. Bukit Rambai | 54 | 10.6 |
| 9. Aman | 44 | 8.6 |
| 10. Alai Perdana | 46 | 9 |

Taman (Housing Area)

Majority of the respondent are from Taman Merbok which is 68 (13.3%) respondents. Followed by Taman Paya Rumpit Utama, Desa Duyung, Bukit Rambai and Seri Jati 58(11.4%), 57(11.2%), 54(10.6%) and 51(10%) respondents respectively while the rest of the housing areas consists below than 50(10%) of respondents.

Table 2

| No. of Household | Frequency | Percent (%) |
|------------------------------|------------------|--------------------|
| 1. 2-4 people | 131 | 21.6 |
| 2. 5-7 people | 307 | 50.1 |
| 3. 8-10 people | 73 | 14.3 |
| Household Income | Frequency | Percent (%) |
| 1. <RM3000 | 42 | 8.2 |
| 2. RM3000-RM4000 | 197 | 38.6 |
| 3. RM4001-RM5000 | 142 | 27.8 |
| 4. RM5001-RM6000 | 69 | 13.5 |
| 5. RM6001-RM7000 | 37 | 7.2 |
| 6. RM7001-RM8000 | 13 | 2.5 |
| 7. RM8001 & above | 11 | 2.2 |
| Race | Frequency | Percent (%) |
| 1. Malay | 425 | 83.2 |
| 2. Chinese | 82 | 16 |
| 3. Indian | 4 | 0.8 |
| No. of Years Residing | Frequency | Percent (%) |
| 1. <5 years | 78 | 15.3 |
| 2. 5-10 years | 338 | 66.1 |
| 3. 11-15 years | 95 | 18.6 |
| Floor Plan (Approved) | Frequency | Percent (%) |
| 1. Yes | 436 | 85.3 |
| 2. No | 25 | 4.9 |
| 3. Uncertain | 50 | 9.8 |
| House Position | Frequency | Percent (%) |
| 1. Conner Lot | 96 | 18.8 |
| 2. Intermediate lot | 384 | 75.1 |
| 3. End lot | 31 | 6.1 |

Other characteristic of the household

Table 2 shows other characteristic of the household as a demographic data of the respondents. In majority, number of household consist of 5 to 7 people which is 307(50.1%), the household income is between RM3000 to RM4000 which is 197(38.6%), majority of respondents are Malay 425(83.2%), 338(66.1%) of the respondents have been residing from 5 to 10 years in their housing area, 436(85.3%) of the respondents have an authorised floor plan and majority of the respondent's house position is an intermediate lot which applies to 384 people or 75.1% of the respondents.

Reasons for modification

Table 3

| Economically | Frequency Score (%) | | | | | Mean Score |
|--|---------------------|--------------|---------------|----------------|---------------|------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1. I modify my house because I have my own / family savings for home modification. | 135 (26.4) | 52 (10.2) | 45 (8.8) | 197 (38.6%) | 82 (16) | 3.08 |
| 2. I modify my house because I have approval for bank loans | 81 (15.9) | 47 (9.2) | 58 (11.4%) | 178 (34.8) | 147 (28.8) | 3.51 |
| 3. I modify my house because I have received government loan | 252 (49.3) | 98 (19.2) | 48 (9.4) | 63 (12.3) | 50 (9.8) | 2.14 |
| 4. I modify my house because it is better and cheaper than buying a brand new house. | 44 (8.6%) | 60 (11.7) | 61 (11.9) | 226 (44.2) | 120 (23.5) | 3.62 |

Reasons for modification in terms of economy

Based on the value of mean, the respondent chose items 2 and 4 as the prime reason for modification after the house is constructed. The values of mean are 3.51 and 3.62 respectively.

Table 4

| Aesthetically | Frequency Score (%) | | | | | Mean Score |
|--|---------------------|---------------|--------------|---------------|---------------|------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1. I modified my house to obtain a better and beautiful façade | 45 (8.8) | 102 (20) | 44 (8.6) | 197 (38.6) | 123 (24.1) | 3.49 |
| 2. I modify my house to avoid the standard repetitive design | 211 (41.3) | 138 (27) | 72 (14.1) | 54 (10.6) | 36 (7) | 2.15 |
| 3. I modify my house to obtain comfortability and uniqueness of the interior design | 42 (8.2) | 90 (17.6) | 53 (10.4) | 202 (39.5) | 124 (24.3) | 3.54 |
| 4. House modification is essential for me because the original design is inappropriate | 80 (15.7) | 135 (26.4) | 84 (16.4) | 136 (26.6) | 76 (14.9) | 2.99 |
| 5. I modified my house to express my individuality and personality | 68 (13.3) | 134 (26.2) | 87 (17) | 153 (29.9) | 69 (13.5) | 3.04 |

Reasons for modification in terms of aesthetic

Based on the value of mean, the respondent chose items 1 and 3 as the prime reason for modification after the house is constructed. The value of mean is 3.49 and 3.54 respectively.

Table 5

| Psychologically | Frequency Score (%) | | | | | Mean Score |
|---|---------------------|---------------|---------------|---------------|---------------|------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1. I modified my house because I was influenced by the surrounding, (the houses in the neighbourhood had changed as well) | 148 (29) | 156 (30.5) | 96 (18.8) | 84 (16.4) | 27 (5.3) | 2.39 |
| 2. I modified my house because I had no choice (I did not want to move because I am attached to the house) | 41 (8) | 92 (18) | 104 (20.4) | 158 (30.9) | 116 (22.7) | 3.42 |
| 3. I modified my house because I am well aware of the regulations set by the authorities regarding house modification | 24 (4.7) | 76 (14.9) | 85 (16.6) | 231 (45.2) | 95 (18.6) | 3.58 |
| 4. I modified my house because I support housing modification and renovation | 32 (6.3) | 76 (14.9) | 81 (15.9) | 197 (38.6) | 125 (24.5) | 3.6 |
| 5. I modified my house to indicate my status in the community | 224 (43.8) | 110 (21.5) | 83 (16.2) | 62 (12.1) | 32 (6.3) | 2.15 |

Reasons for modification in terms of psychology

Based on the value of mean, the respondent chose items 3 and 4 as the prime reason for modification after the house is constructed. The value of mean is 3.58 and 3.6 respectively.

Table 6

| Necessity | Frequency Score (%) | | | | | Mean Score |
|--|---------------------|---------------|---------------|---------------|---------------|------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1. I modified my house to maintain the house and to avoid obsolescent | 25 (4.9) | 28 (5.5) | 43 (8.4) | 220 (43.1) | 195 (38.2) | 4.04 |
| 2. I modified my house to cater for the growing number of household | 77 (15.1) | 78 (15.3) | 49 (9.6) | 180 (35.2) | 127 (24.9) | 3.4 |
| 3. I modified my house to expand certain spaces in my house | 27 (5.3) | 45 (8.8) | 19 (3.7) | 235 (46) | 185 (36.2) | 3.99 |
| 4. I modified my house to eliminate certain spaces in my house | 194 (38) | 140 (27.4) | 51 (10) | 77 (15.1) | 49 (9.6) | 2.31 |
| 5. I modified my house to divide certain spaces in my house | 103 (20.2) | 153 (29.9) | 40 (7.8) | 132 (25.8) | 83 (16.2) | 2.88 |
| 6. I modified my house to extend certain areas | 27 (5.3) | 32 (6.3) | 22 (4.3) | 257 (50.3) | 173 (33.9) | 4.01 |
| 7. I modified my house to rearrange certain spaces in my house | 81 (15.9) | 139 (27.2) | 41 (8) | 162 (31.7) | 88 (17.2) | 3.07 |
| 8. I modified my house to fulfill religious aspect and culture of my household | 62 (12.1) | 64 (12.5) | 183 (35.8) | 125 (24.5) | 77 (15.1) | 3.18 |

Reasons for modification in terms of necessity

Based on the value of mean, the respondent chose items 1, 3 and 6 as the prime reason for modification after the house is constructed. The values of mean are 4.04, 3.99 and 4.01 respectively.

Table 7

| Comfortability (Quantity) | Frequency Score (%) | | | | | Mean Score |
|---|---------------------|---------------|-------------|---------------|---------------|------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1. The number of bedrooms in my house is sufficient | 69 (13.5) | 130 (25.4) | 8 (1.6) | 212 (41.5) | 92 (18) | 3.25 |
| 2. The number of bathrooms and toilets in my house is sufficient | 42 (8.2) | 83 (16.2) | 3 (0.6) | 278 (54.4) | 105 (20.5) | 3.63 |
| 3. The number of stores / utility rooms in my house is sufficient | 47 (9.2) | 159 (31.1) | 32 (6.3) | 213 (41.7) | 60 (11.7) | 3.16 |
| 4. The number of guest rooms in my house is sufficient | 66 (12.9) | 115 (22.5) | 47 (9.2) | 202 (39.5) | 81 (15.9) | 3.23 |

Reasons for modification in terms of comfortability (quantity)

Based on the value of mean, the respondent chose items 2 as the prime reason for modification after the house is constructed. The value of mean is 3.63.

Table 8

| Comfortability (Width) | Frequency Score (%) | | | | | Mean Score |
|---|---------------------|---------------|--------------|---------------|--------------|------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1. The width of bedrooms in my house is appropriate | 43 (8.4) | 97 (19) | 21 (4.1) | 274 (53.6) | 76 (14.9) | 3.48 |
| 2. The width of living room in my house is appropriate | 43 (8.4) | 97 (19) | 19 (3.7) | 284 (55.6) | 68 (13.3) | 3.46 |
| 3. The width of dining room in my house is appropriate | 38 (7.4) | 74 (14.5) | 25 (4.9) | 304 (59.5) | 70 (13.7) | 3.58 |
| 4. The width of kitchen in my house is appropriate | 180 (35.2) | 183 (35.8) | 20 (3.9) | 112 (21.9) | 16 (3.1) | 2.22 |
| 5. The width of bathrooms and toilet in my house is appropriate | 58 (11.4) | 98 (19.2) | 20 (3.9) | 289 (56.6) | 46 (9.0) | 3.33 |
| 6. The width of guest room in my house is appropriate | 34 (6.7) | 88 (17.2) | 54 (10.6) | 267 (52.3) | 68 (13.3) | 3.48 |
| 7. The width of balcony in my house is appropriate | 22 (4.3) | 55 (10.8) | 62 (12.1) | 285 (55.8) | 87 (17) | 3.70 |
| 8. The width of car porch in my house is appropriate | 69 (13.5) | 106 (20.7) | 24 (4.7) | 259 (50.7) | 53 (10.4) | 3.24 |
| 9. The width of store and utility room in my house is appropriate | 38 (7.4) | 101 (19.8) | 58 (11.4) | 257 (50.3) | 57 (11.2) | 3.38 |

Reasons for modification in terms of comfortability (width)

Based on the value of mean, the respondent chose items 1, 2, 3, 6 and 7 as the prime reason for modification after the house is constructed. The values of mean are 3.48, 3.46, 3.58, 3.48 and 3.70 respectively.

Table 9

| Comfortability (Alternative) | Frequency Score (%) | | | | | Mean Score |
|--|---------------------|---------------|-------------|---------------|--------------|------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1. I convert my guest room into my children's bedroom | 186 (36.8) | 58 (11.4) | 36 (7.0) | 167 (32.7) | 64 (12.5) | 2.74 |
| 2. I use the living room as the guest's sleeping area and my children's sleeping area | 161 (31.5) | 81 (15.9) | 34 (6.7) | 153 (29.9) | 82 (16) | 2.83 |
| 3. I use the utility room as the guest's sleeping area and my children's sleeping area | 286 (56) | 118 (23.1) | 49 (9.6) | 49 (9.6) | 9 (1.8) | 1.78 |

Reasons for modification in terms of comfortability (alternative)

Based on the value of mean, there are no items are chosen from respondent as the prime reason for modification after the house is constructed.

Analysis Result

The analysis is carried out to study the relationships between the respondent's background data / profile and the reasons of modification. Chi Square test is used to discover if there is a relationship between the two categorical variables.

Total number of Household

Table 10

| Aspect | Chi Square | Df | P value |
|----------------|------------|----|---------|
| Economy | 17.613 | 8 | 0.024* |
| Aesthetic | 20.509 | 8 | 0.009* |
| Psychology | 44.379 | 8 | 0.000* |
| Necessity | 30.575 | 8 | 0.000* |
| Comfortability | 27.876 | 8 | 0.064 |

H₀: There is no relationship between reason of modification and total number of household.
H₁: There is a relationship between reason of modification and total number of household.
Level of significant, $\alpha=0.05$

Result: H₀ is rejected for the aspect of economy, aesthetic, psychology and necessity because p value is less than 0.05. It can be concluded that a relationship exists between number of household and reasons of modification in terms of economy, aesthetic, psychology and necessity.

There are relationships between reason of modification and total number of household. It seems that in the Chi-Square test total number of household has a significant relationship with comfortability. The P value was 0.064 which is higher than 0.05 (level of significant). The other factors are rejected. This indicates the comfortability of the residents is influenced by the total number of household. Comfortability is related to the number of household because it affects their condition of living. This includes the space in the house such as

bedrooms, bathrooms, store, living room, dining room, kitchen, balcony and even the car porch. When there are too many people cramped in one space, it affects their comfortability thus, larger and multiple space is needed.

Household Income

Table 11

| Aspect | Chi Square | Df | P value |
|----------------|------------|----|---------|
| Economy | 98.870 | 24 | 0.000* |
| Aesthetic | 63.442 | 24 | 0.000* |
| Psychology | 53.474 | 24 | 0.001* |
| Necessity | 32.919 | 24 | 0.106 |
| Comfortability | 169.331 | 24 | 0.000* |

H₀: There is no relationship between reason of modification and household income.
 H₁: There is a relationship between reason of modification and household income.
 Level of significant, $\alpha=0.05$

Result: H₀ is rejected for the aspect of economy, aesthetic, psychology and comfortability because p value is less than 0.05. It can be concluded that a relationship exists between the household income and reasons for modification in terms of economy, aesthetic, psychology and comfortability.

Necessity has significant relationship with the household income. The score was 0.106 and was higher than 0.05 (level of significant). The other factors are rejected. This indicates that necessity or needs of the residents are indeed influenced by the household income.

Total number of children

Table 12

| Aspect | Chi Square | Df | P value |
|----------------|------------|----|---------|
| Economy | 48.220 | 16 | 0.000 |
| Aesthetic | 48.662 | 16 | 0.000 |
| Psychology | 57.447 | 16 | 0.000 |
| Necessity | 91.990 | 8 | 0.000 |
| Comfortability | 108.856 | 36 | 0.000 |

H₀: There are no relationship between reason of modification and total number of children.
 H₁: There are relationship between reason of modification and total number of children.
 Level of significant, $\alpha=0.05$

Result: H₀ is rejected on all aspect of modification because p value is less than 0.05. It can be concluded that a relationship exists between number of children and reasons of modification in terms of economy, aesthetic, psychology, necessity and comfortability.

The total number of children however does not influence any of the factors mentioned above. The P value resulted in 0 and the expected significant value was supposed to be higher than 0.05. Necessity in this study is defined as shelter. The need to improve one's living is to improve their shelter or in other term their house. The residents have the tendency of

modifying their houses to improve them, to cater their families and to either expand, eliminate, divide, extend, or even rearrange certain spaces in their house. All these factors are influenced by the total number of children to accommodate them and to satisfy their families.

Race

Table 13

| Aspect | Chi Square | Df | P value |
|----------------|------------|----|---------|
| Economy | 16.268 | 8 | 0.039* |
| Aesthetic | 13.938 | 8 | 0.083 |
| Psychology | 35.829 | 8 | 0.000* |
| Necessity | 8.017 | 8 | 0.432 |
| Comfortability | 9.207 | 18 | 0.955 |

H₀: There is no relationship between reason of modification and race.
 H₁: There is a relationship between reason of modification and race.
 Level of significant, $\alpha=0.05$

Result: H₀ is rejected for the aspect of economy and psychology because p value is less than 0.05. It can be concluded that a relationship exists between race and reasons of modification in terms of economy and psychology.

There is a relationship between Aesthetic, Necessity and Comfortability with race. Their P values are more than 0.05 which was 0.083, 0.432 and 0.955 respectively. This indicates aesthetic, necessity and comfortability are influenced by race. Every race have different opinions in house modification. They are either influenced by their custom, tradition or even religion. In example, a Chinese family is known to analyse their house using the energy map and the Bagua which is an octagonal grid containing the symbols of the I Ching, the ancient oracle on which feng shui is based. Knowing the bagua of the house will help the household understand the connection of specific feng shui areas of their house to specific areas of your life. So it can be concluded that every race has different aesthetic views, necessity and comfortability.

No of years residing

Table 14

| Aspect | Chi Square | Df | P value |
|----------------|------------|----|---------|
| Economy | 11.449 | 8 | 0.178 |
| Aesthetic | 9.071 | 8 | 0.336 |
| Psychology | 12.775 | 8 | 0.120 |
| Necessity | 18.390 | 8 | 0.018* |
| Comfortability | 56.322 | 18 | 0.000* |

H₀: There is no relationship between reason of modification and number of years residing.
 H₁: There is a relationship between reason of modification and number of years residing.
 Level of significant, $\alpha=0.05$

Result: H₀ is rejected for the aspect of necessity and comfortability because p value is less than 0.05. It can be concluded that a relationship exists between number of years residing and reasons of modification in terms of necessity and comfortability.

H_0 is rejected for the aspect of necessity and comfortability because p value is less than 0.05. It can be concluded that the relationship exists between number of years residing among aspect of economy, aesthetic and psychology. Number of years residing is associated with economy which is the resident's income, aesthetic (their views on concerning the appreciation of beauty or good taste) and psychology (social behavior). Throughout the years of living in the house, residents have a tendency to upgrade their house when they have a steady source of income, influenced by the surrounding which confirmed the relationship with psychology and aesthetic. The surrounding makes them realize (psychology) that they also wanted to modify their houses thus, when the modification is completed, it points out the aesthetic views on design sourced (economy) by their income.

No of bedrooms

Table 15

| Aspect | Chi Square | Df | P value |
|--|------------|----|---------|
| Economy | 9.434 | 8 | 0.307 |
| Aesthetic | 19.696 | 8 | 0.012* |
| Psychology | 16.845 | 8 | 0.032* |
| Necessity | 12.059 | 8 | 0.149 |
| Comfortability | 19.376 | 18 | 0.369 |
| H_0 : There is no relationship between reason of modification and number of bedrooms. H_1 : There is a relationship between reason of modification and number of bedrooms. Level of significant, $\alpha=0.05$ | | | |

Result: H_0 is rejected for the aspect of aesthetic and psychology because p value is less than 0.05. It can be concluded that a relationship exists between number of bedrooms and reasons of modification in terms of aesthetic and psychology.

Factors aesthetic and psychology are influenced by the number of bedrooms in the house. The same goes for the number of bedrooms in the house. The resident's social behaviour (psychology) signifies their support on modification and that they are attached to the surrounding neighbourhood to have influence the tendency of changes in the number of bedroom. Aesthetically, the reasons the two variables are related is that the residents have their certain opinion on the design.

Total no. of vehicles

Table 16

| Aspect | Chi Square | Df | P value |
|--|------------|----|---------|
| Economy | 33.423 | 12 | 0.001 |
| Aesthetic | 43.670 | 12 | 0.000 |
| Psychology | 44.384 | 12 | 0.000 |
| Necessity | 68.117 | 12 | 0.000 |
| Comfortability | 112.999 | 27 | 0.000 |
| H_0 : There is no relationship between reason of modification and total number of vehicles. H_1 : There is a relationship between reason of modification and total number of vehicles. Level of significant, $\alpha=0.05$ | | | |

Result: H_0 is rejected for the all aspect of modification because p value is less than 0.05. It can be concluded that a relationship exists between total number of vehicles and reasons of modification in terms of economy, aesthetic, psychology, necessity and comfortability.

There are no relationship between reason of modification and total number of vehicles. Apparently, the number of vehicles is not influenced by the reason for modification. The modification of the car porch does not affect the number of vehicles whatsoever.

Floor Plan Status Awareness

Table 17

| Aspect | Chi Square | Df | P value |
|----------------|------------|----|---------|
| Economy | 57.142 | 8 | 0.000* |
| Aesthetic | 45.741 | 8 | 0.000* |
| Psychology | 3.963 | 8 | 0.860 |
| Necessity | 26.514 | 8 | 0.001* |
| Comfortability | 54.446 | 18 | 0.000* |

H_0 : There is no relationship between reason of modification and floor plan status awareness.
 H_1 : There is a relationship between reason of modification and floor plan status awareness.
 Level of significant, $\alpha=0.05$

Result: H_0 is rejected for the aspect of economy, aesthetic, necessity and comfortability because p value is less than 0.05. It can be concluded that a relationship exists between floor plan approved by the local authorities and reasons of modification in terms of economy, aesthetic, necessity and comfortability.

There is a relationship between reason of modification (psychologically) and floor plan status awareness is either the floor plan is approved by the local authorities or not. In terms of psychology, residents are well aware of their situations on house modifications. They are also well aware of the regulations set by the authorities regarding house modification.

House Position

Table 18

| Aspect | Chi Square | Df | P value |
|----------------|------------|----|---------|
| Economy | 5.180 | 8 | 0.738 |
| Aesthetic | 14.552 | 8 | 0.068 |
| Psychology | 9.725 | 8 | 0.285 |
| Necessity | 21.279 | 8 | 0.006* |
| Comfortability | 41.871 | 18 | 0.001* |

H_0 : There is no relationship between reason of modification and position house.
 H_1 : There is a relationship between reason of modification and position house.
 Level of significant, $\alpha=0.05$

Result: H_0 is rejected for the aspect of necessity and comfortability because p value is less than 0.05. It can be concluded that a relationship exists between house position and reasons of modification in terms of necessity and comfortability.

Finally, relationship exists between position of the house among aspect of economy, aesthetic and psychology. Position of the house influences the economy because the price of houses is different from each type. The corner lot is especially pricier since it covers more land than the intermediate and end-lot. Reasons for aesthetic and psychology are similar to the relation with number of bedroom.

Table 19

| Relationship | Economy | Aesthetic | Psychology | Necessity | Comfortability |
|---------------------------|---------|-----------|------------|-----------|----------------|
| Total number of household | | | | | √ |
| Household income | | | | √ | |
| Total number of children | | | | | |
| Race | | √ | | √ | √ |
| Number of years residing | √ | √ | √ | | |
| Number of bedrooms | √ | | | √ | √ |
| Total number of vehicles | | | | | |
| Floor plan status | | | √ | | |
| House position | √ | √ | √ | | |

Table 27 shows the relationship between reason of modification and household's aspects of living. The marked box (√) indicates that the relationship exists between the two variables, while the unmarked box indicated that there is no relationship exist whatsoever.

Summary

In summary, this paper discusses reasons behind modification and the factors influencing the modifications. The tendency of terraced house modifications is based on five factors which are economy, aesthetic, psychology, necessity and comfortability. Economically, residents modified their houses because they have their own source of income either their own family savings, bank loans or even government loans. 226 (44.2%) agreed that they modified their houses because it is cheaper than buying a new house. In terms of aesthetic, the residents

modified their houses to obtain a better façade, interior design and to express their own personal taste in design. They also strongly disagree 211 (41.3%) on maintaining the standard repetitive design.

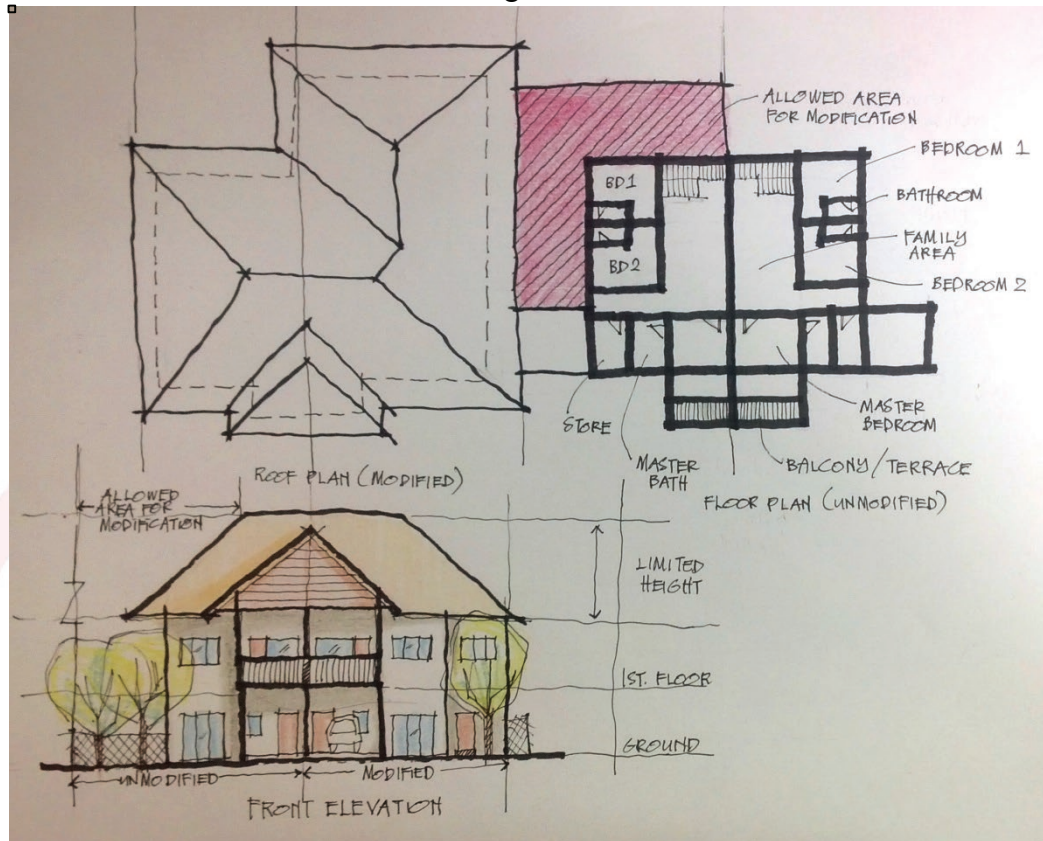
Surprisingly 224 (43.8%) respondents modified their houses to indicate their status in the community. Psychologically, they also modified their houses because they support the act of modification, had been attached to the sense of living in the particular area and fully understand the regulations set by the authorities regarding terraced house modification. In terms of necessity, majority of the respondents modified their houses to avoid obsolescent, cater for the growing number of household, expand, extend and rearrange certain spaces in the house.

Finally, in terms of comfortability, many respondents disagrees 183 (35.8%) with the width of the kitchen and the number of bedrooms provided in their house 278 (54.4%). This shows that space are critically needed in the terraced house. Since terraced house is bound with several rules and requirements upon modification, having the house modified is difficult for the residents. Therefore, it resulted in unauthorised modifications done in desperate need for space.

Recommendation

Flexible housing can reduce costs over the long term by extending the lifecycle of public housing. Schneider and Till (2005) encourage the public sector to recognize the long-term economic advantages of flexible design: "(If) technological systems, service strategies and spatial principles are employed that enable the flexible use of a building, these buildings will in turn last longer." Flexible design projects need not be expensive and complex, requiring expertise unavailable locally, as some have been in the past. Furthermore, if flexible design truly responds to the social and cultural needs of its inhabitants, their satisfaction will translate into increased housing longevity. Schneider and Till (2005) indicate that flexibility includes long-term economic savings "such as a higher appreciation of the dwelling on the part of the user, less occupant fluctuation, and the ability to react quickly to changing needs or wants of the existing or potential inhabitants and the market."

Figure 1



Flexible terraced housing designed by the researcher

The author / researcher came out with an idea of flexible design housing with a certain area in the terraced house being preserved for future modification. The idea is, to allow the homeowners to modify certain area of the house so that it does not disturb the balance of the house or the unique design of the standard repetitive design. The allowed area for modification are coloured in red (see figure 1). Such design could benefit the residents and the authorities since, the allowed area is located in the back, any excessive modification could be pin pointed easily by the authorities thus, make easier for them to take any necessary action for violating the rules. As for the residents, the modification does not disturb the housing area as much as it would in regular renovation works which focuses the frontage design of the house. However, the contrast of this idea is that since personalization and modification supports individual taste in design, not allowing the homeowners to modify the front façade would be inconvenience since the front façade is the area they would like to change the most.

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Fashion as Communication: A Semiotic Analysis on Dagadu T-Shirts as Counter-Hegemony Toward Americanization

Irsanti Widuri Asih

Universitas Terbuka, Indonesia

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1. Introduction

In the struggle to be a consumer society, the Indonesian turned into a society that was idolized many things coming from the West. Western is a concept that refers to the over-developed countries majority in Europe, which in the era of colonialism colonized countries in Asia and Africa. Now, the West also includes the United States of America (USA) and Australia (Damono in Ibrahim, 1997: 4).

Although the USA did not enter the ranks of colonial powers in the era of colonialism, but It has become one of the most influential countries in the world. Political economic theorists, such as Armand and Michele Mattelart, Janet Wasko, Toby Miller, and Herbert Schiller (in Branston and Stafford, 2003: 408) argues that American dominance in the world began with the globalization of communication that triggered the interests of the various trading company based in the U.S. oil fields and the army since the Second World War. The power of the American media becomes a major factor in the American dominance around the world. Through the power of the media, America exports its lifestyle which becomes a reference for Third World countries.

The result of Surveyone in 2007 showed that American-style restaurant dominated the fast food restaurants that adored among young people in Indonesia (www.surveyyone.co.id). The top spots occupied by Kentucky Fried Chicken (KFC) followed by A & W and McDonald's. Other survey showed that Polo and Hugo Boss are the favorite fashion and perfume brands of young executives in Jakarta, Surabaya, and Medan.

Antonio Gramsci, as the originator of the theory of hegemony, defines hegemony as a means of cultural and ideological in which the dominant groups in society, including the ruling class, to maintain its dominance through consent spontaneously of the subordinate groups, including the working class (in Strinati, 2004: 147).

Referring to Gramsci's idea about hegemony, we have to face the fact that Indonesian people accept the domination of American culture by consent. The continued domination of American culture to the people of Indonesia will give a fairly alarming implications. If the Indonesian people constantly refer to American culture as a lifestyle and adopt the culture roundly, then what will happen to the local culture of Indonesia as a nation's identity? Branston and Stafford (2003: 408) suggests the local and traditional culture will be destroyed by a process as it is conceptualized by Schiller as media imperialism or cultural imperialism. In fact, Strinati (2004: 33) argues that Americanization can threaten a nation's cultural identity. Thus, the hegemony of American culture to the people of Indonesia must be confronted if we do not want to lose the true identity of this nation.

In spawned the idea of hegemony, Gramsci also revealed his idea of counter to hegemony. This thinking is based on the assumption that a society will not blindly accept all the ideas offered by the dominant power. At the same time, the public will use the same sources and strategies used by the dominant social group launched to oppose the hegemonic dominance. This is what Gramsci called as "counter to hegemony" (West and Turner, 2007: 397).

In Indonesia, one of significant movements against Americanization was the bombing of McDonalds restaurant in Makassar on December 5, 2002 that killed three people and wounded 11 others. Unfortunately, this kind of movement took innocent people's lives. Then, there should be other way in resisting Americanization in "soft-way" without losing the resistance mission?

In 1994, in Yogyakarta was born a creative design business called Dagadu Djogdja. It's main product are t-shirts with humorous designs. One of the concept of the designs was parodying

many famous icons from all around the world. Dagadu considers this concept as a universal formulation through which Dagadu want to illustrate that Dagadu has a taste that is also accepted internationally (www.dagadu.co.id). Many of the selection of international icons that are derived from the United States, for example the logo of Superman, Starbucks Coffee, Dunkin' Donuts, YouTube, Warner Bros., or Melrose Place the series.

Lull (1995: 38) argues a tendency of resistance to hegemony formulated in the processes of communication, the interpretation, the social circulation, and use of media content. Expression of the dominant ideology sometimes reformulated to emphasize alternative messages in a form of anti-starch or resistance through humorous or sarcastic ways.

Considering Dagadu designs that parodies icons from America, then frame it with Lull thinking about resistance to hegemony, the author assumes that Dagadu designs are a form of counter-hegemony against American domination symbols. Fashion, however, is a phenomenon of communication. Every piece of clothing worn by someone states something, which communicates who the person behind the clothing. Dagadu T-shirts as part of fashion is a medium of communication. Dagadu plays as a communicator that encodes counter-hegemony toward American cultural domination in Indonesia.

This paper will reveal two issues; how do Dagadu t-shirts as a fashion do the communication directed to counter-hegemony againts Americanization by producing alternative values to the dominant values, and what ideologies are carried behind the counter-hegemonic designs of Dagadu t-shirts against Americanization?

2. British Cultural Studies

British Cultural Studies pioneered by Richard Hogart and Raymond Williams in 1950 that examined the working class in Britain after World War II (Littlejohn, 2002: 216). At present, Stuart Hall led this movement. Cultural studies carried by Hall is based on the desire to uncover the role of elite institutions, such as the media, which often presents a misleading image (West and Turner, 2007: 389-390).

By using this British cultural studies perspective, this study will see how the United States as a dominant force in the international level, is still so powerful. United States is able to make it's culture so loved by everyone outside the country and make all countries around the world as the target market for all it's cultural products.

3. Antonio Gramsci: Hegemony and Counter-hegemony

a. Hegemony

Gramsci's notion of hegemony is based on the taught of Karl Marx about false consciousness, a condition in which individuals become unaware of the dominance in their lives (West and Turner, 2007: 395). In the thought of Gramsci, the audience can be exploited by the same social system that they support (financially).

In contemporary Western society, power relations between groups and institutions tend to emerge through the approval process rather than violence and coercion (Thwaites, Davis and Mules, 2002: 246). In hegemony, ideology is not imposed on the individual, but offered to them. Thus, the ideology that goes through hegemony will be accepted as unavoidable.

b. Counter-hegemony

West and Turner (2007: 397) suggest people will not always accept and believe everything presented by the dominant power. Community will use the same resources and strategy with the

dominant social groups to oppose the domination of hegemonic dominance. Gramsci called this thought as counter-hegemony.

Tendency of resistance against hegemony are formulated in the processes of communication, the interpretation, the social circulation, and the use of media content (Lull, 1995: 38). The expressions of the dominant ideology sometimes reformulated to emphasize alternative messages, and even in the form of anti-starch through humorous or sarcastic ways.

Lull infers that resistance to hegemony does not necessarily in the serious form of economic and political control as in the concept of Gramsci, Williams, Hall, Giddens, and Thompson (Lull, 1995: 40). However, Lull ensures that these forms actually express freedom of thought, creativity, determination, and resistance that can't be destroyed by hegemony.

By using the theory of hegemony and counter-hegemony of Gramsci, it was obvious that what was done by Dagadu through it's T-shirt designs that parodying global symbols from America is a form of resistance against American cultural domination of the Indonesian people.

4. Fashion as Communication

Fiske (1990 in Barnard, 2009: 41) states that there are two main schools in the study of communication. The first school sees communication as a process of sending and receiving messages, while the semiotic models understand communication as "the production and the exchange of meanings" (Fiske, 1990 in Barnard, 2009: 44).

Thus, the designs on the shirts Dagadu is a form of communication where the meaning of semiotic design will be entirely in the hands of readers. The meaning will vary as influenced by different things from one person to another person. The distinction of meaning by t-shirt readers differently can't be regarded as a failure of communication. Nevertheless, this study would not elaborate on the meaning of the Dagadu t-shirt designs. This section merely wanted to show that T-shirt as a fashion is also a form of communication. And, the communications made by Dagadu intended to launch criticism of the dominant party, which in the terms of Gramsci describes as counter-hegemony.

5. Globalization, Glocalization, and Grobalization

Ritzer, in *The Globalization of Nothing* (2006: 98), offers the concept of grobalization regarded as indispensable companion to the idea of glocalization. As the opposite of glocalization, grobalization will lead to the creation of homogeneity.

Ritzer lead us to understand the concept of glocalization through heterogenization which gives emphasis on diversity that is characteristic of glocalization. Heterogenization is in contrast to the homogenization that always accompanies grobalization.

Grobalization focused on the imperialistic ambitions of nations, corporations, organizations, and preferences and their willingness to put themselves in a variety of geographic areas (Ritzer, 2006: 98). Their main concern is to see the power, their influence, and in some cases see the growth (grow) their profits around the world. In Ritzer's thought, grobalization forms a binary opposition against glocalization.

One of the main driving forces in grobalization is the need of various companies, institutions, and countries to seek profits by increasing their cultural hegemony throughout the world. In Ritzer's perspective, grobalization was born as the impact of the American interests to gain profit by pushing it's cultural hegemony over the globe.

Three subprocesses of globalization that takes Ritzer's concern are capitalism, McDonaldisasi, and Americanization that actually inter-related (2006: 106). Americanization is the proliferation of ideas, habits, social patterns, industrial, and American capital to the world (F. Williams in Ritzer, 2006: 113). Ritzer assesses Americanization as a form of cultural imperialism, institutions, politics, and the American economy. Some negative impacts of Americanization include the destruction of the national artistic expression of the Hollywood film industry to national films in various countries and the spread of new facilities that encourage the consumption of American-style (even forcing us) to consume goods and services in an unprobable amount (2006: 114-115).

6. Semiotics

Ferdinand de Saussure defined semiotics as "the study of signs in society". He also showed that semiotics related to what gave rise to signs and what laws governing the signs (Saussure in Barnard, 2009: 115-118). For Saussure, a sign consists of two parts, "signifier" and "signified". Signifier is a physical part of a sign such as voice or word form. Signified is a mental concept which is a reference to the signifier. Taken together, they form a "sign".

7. Study Methods

This study uses critical constructionism paradigm. Heiner (2006: 7 -11) stated that critical constructionism is a synthesis of two influential theories in sociology; the conflict theory and symbolic interactionism. Symbolic interactionism directs our attention to the meaning of social problems in society instead of the social problems that actually occur. Unlike the social constructionism, critical constructionism emphasizes the importance of the role of elites in the process of the construction of problems. By borrowing the concept of conflict theory, critical constructionism argues that the way social problems are constructed, formed, and presented to the public more often reflect the interests of the elite than of most people who are powerless.

A qualitative approach is utilized in this study. Baxter and Babbie (2004) emphasized that qualitative study methods are often carried out by interpretive and critical studyers. Qualitative study process can be described as inductive (not deductive) and ideographic (not nomothetic). The unit of analysis of this study is the Dagadu's t-shirt designs that indicate counter-hegemony toward popular objects from the United States. Primary data obtained by analyzing the T-shirt designs that reflect counter-hegemony toward Americanization. Secondary data obtained through interviews with the creative team of PT. Aseli Dagadu Djogdja.

This study is a review of the signs that appear in Dagadu's t-shirt designs, so the most appropriate analysis is semiotic. Patton (2002: 133) put semiotics as a study perspective that elaborates how various signs (words and symbols) direct meanings in certain contexts. In reading a text, Barthes (1974 in Wardani, 2006) divided it into units called lexia readings. Lexia consist of five basic reading code which aims to determine how the lections are interconnected and woven that form a whole text.

The five reading codes are hermeneutical code, semantics code, symbolic code, proairetic code, and cultural code. Hermeneutical code is a code of puzzle and connect with readers' hope to be able to find an answer to the question or enigma contained in a text. Semantics code or connotative code uses cues, clues, or glimpses of meaning that direct the readers to the themes in the story. Symbolic code is characterized by the repeated appearance regularly so they are recognizable. Proairetic code is also called as the action code. Cultural code is in the form of reference or allusion to the various things that have been there before and have been generally known.

This study is in the domain of text-production which elaborates how Dagadu Djogdja produce alternative messages by doing a parody of the global symbols that come from America. Thus, this study does not reflect the perceptions of consumers regarding Dagadu T-shirt messages that are counter-hegemonic against Americanization.

8. A Counter-hegemony toward Americanization on Dagadu T-Shirts

Referring to the original work, the parodying performed by Dagadu to various symbols from America intend to form a new reading to simply make jokes or innuendo slip, either on the image of the symbol and on the city and the Jogja culture. The creation of new meaning is in harmony with the concept of counter-hegemony offered by Lull that is not only done in a serious or extreme way, as in the concept of Gramsci, Williams, Hall, Giddens, and Thompson (1995: 40), but can also be done in 'easy' way without leaving its main mission, which is to fight.

In this study, studyers analyzes five Dagadu's designs that illustrate the counter-hegemony against Americanization. This study will only focus on the Americanization forms which are interpreted F. Williams as the proliferation of ideas, habits, social patterns, industry, and capital of America to all parts of the world (in Ritzer, 2006: 113). The keywords used in this analysis are *ideas, habits, social patterns, industry, and capital* of America that comes through its products in Indonesia.

The five designs analyzed in this study are; first, the design with the name "Always Jogja", parodying the Coca-Cola tag "Always Coca-Cola". Secondly, the design of "Sudirman" which parodied an iconic superhero "Superman" from Superman Returns movie version. Third, the design of "Malio Boro Mbikin Boros" that parodied "Warner Bros". Fourth, the design of "Jogjanya nyAman!" which is a parody tag of the fast food restaurant Kentucky Fried Chicken (KFC) "Jagonya Ayam". Fifth, the design of "Planet Semrawood" which is a parody of the "Planet Hollywood" restaurant.

If described in a matrix, the five symbols of Americanization can be seen in the following chart.

| Parodied Symbols | Amerikanization Items | | | | |
|-------------------------------|-----------------------|--------|-----------------|----------|---------|
| | Ideas | Habits | Social Patterns | Industry | Capital |
| <i>Coca-Cola</i> | | √ | | √ | √ |
| <i>Superman</i> | √ | | | √ | √ |
| <i>Warner Bros</i> | √ | | | √ | √ |
| <i>Kentucky Fried Chicken</i> | | √ | | √ | √ |
| <i>Planet Hollywood</i> | | | √ | √ | √ |

Table 1. Americanization on the Symbols Parodied Dagadu

8. 1. "Always Jogja" Design



Figure 1. Coca-Cola logo and the Design of "Always Jogja"

In the design of "Always Jogja", there are some lexia that can be read. The first lexia is the text written as "Always". This text can be categorized as a hermeneutical code for causing suspension of answers to what is meant by the word "Always". The second lexia and the most prominent is the text inscribed the word 'Jogja'. This lexia is a proairetic code because Jogja (Yogyakarta) refers to very well-known cultural city located in Central of Java, Indonesia with many stories behind it. The combination of the two lexia constitutes a phrase 'Always Jogja'. This phrase leads to a semantics code that will direct readers to the theme in the story.

The idea of Coca-cola advertisement, is that people "always" consume Coca-Cola as a daily drink. The message to be conveyed in the design of "Always Jogja" by taking the concept of binary opposition, is to do the contradiction between global vs. local. Dagadu tries to counter the hegemony of Coca-Cola as a global symbol that is identic with America by presenting Jogja as the representation of the locality of Indonesia.

As mentioned previously, the first and the second lexia of this design that generates the phrase "Always Jogja" can be categorized as a code of semantics. Referring to the image that Coca-Cola tries to build by it's ads that consumers always drink Coca-Cola, "Always Jogja" design wants to give connotative meanings that readers should just "always" think of the city of Yogyakarta. "Always Jogja" can also be included as a cultural code. As a cultural code, we can see how the Coca-Cola drink has become entrenched in all parts of the world because almost every person ever consumes Coca-Cola.

We could say the United States has successfully exported its culture to Indonesian people to make Coca-Cola as a daily drink replacing water. Through this design, Dagadu want to invite us to love Yogyakarta, as a city that was once became the capital of Indonesia from 1946 to 1949 (Suryo in Siswanto, ND : 4). Dagadu invites us to turn a love for Coca-Cola to the city of Yogyakarta. Coca-Cola and Jogja is no analogy to be equivalent, but Dagadu tries to replace the image of Coca-Cola which is so adored by Indonesian people to the city of Yogyakarta.

8.2. Design "Sudirman"



Figure 2. Superman Returns Movie icon and the Design of Sudirman

The first lexia appeared on the design of "Sudirman" is a "Sudirman" text. This lexia can be categorized as a cultural code because Sudirman is an Indonesian national hero who is closely related to the history of this nation to gain independence from the hands of the invaders. The second lexia is the visualization of General Sudirman opening his long greatness coat. This lexia can be classified as proairetic code. The third lexia is a Javanese traditional hat called "blangkon" and a Javanese traditional dagger called "keris" that can also be categorized as a cultural code since both are presenting Javanese culture.

The connotative meaning that emerges from the overall design is that Dagadu wants to remind us that we also have a true hero, not a fantasy figure, which may be more super than Superman who

has made a large contribution in the history of Indonesian nationality, General Sudirman. Superman and Sudirman, are both youth leaders who had the same "power" as a heroic figure and both are fighting for something. Superman fought against injustice, oppression, crime, in the construction of American values. Sudirman was a young Indonesian leaders who fought against the Dutch colonialists and Japan to win the independence of the Republic of Indonesia. If every Indonesian child idolized Superman as a super hero, why they do not idolize General Sudirman, a real character, who sacrificed body and soul for the sake of the sovereignty of this nation and has many exemplary values? The "S logo" should represent Sudirman , the true Indonesian hero.

8.3. "Boro Malio Mbikin Boros" Design



Figure 3. The Logo of Warner Bros. And the Design of Malioboro Mbikin

The first most prominent lexia of this design is a symbol of Warner Bros. (which is abbreviated as WB) parodied into MB by reversing the letter W to M, which stands for Mbikin Boros. First, this lexia could be classified as a cultural code. "Mbikin" is a word adopted from Javanese. This word represents "makes" in an nonformal language. Mbikin Boros means make someone extravagant.

This lexia can also be categorized as a hermeneutical code because it raises the question of what is meant by Mbikin Boros (make someone extravagant)? To be able to answer these questions, the reader will read other lexia, Malioboro which refers to a tourist site in the city of Yogyakarta. After reading this lexia, then comes the answer of the question: Malioboro Mbikin Boros (Malioboro makes someone extravagant). Why does Malioboro makes someone extravagant? To be able to answer this question, the lexia can be categorized as semantics code. Malioboro is one of the iconic site in Yogyakarta which is very popular among local Indonesian tourists. The connotations created from Malio Boro Mbikin Boros design is that because it is intended as a regional shopping center selling a variety of consumer goods, the travelers often unknowingly be spending a lot of money to spend in this place.

8.4. Design "Jogjanya nyAman!"



Figure 4. Kentucky Fried Chicken Logo and the Design of Jogjanya nyAman!

The visualization of Colonel Sanders wearing blangkon and surjan (both are the Javanese traditional clothes) can be categorized as semantics code. Through this design Dagadu would like to invite the Indonesian people to recall traditional Javanese clothes as Indonesian cultural heritage. Dagadu contradict globality with locality. Dagadu awares that KFC becomes a symbol of globalization. KFC in Indonesia proved to occupy the top position in the minds of the people for a place to enjoy fried chicken. This design can also be classified as semantics code. If KFC restaurants claim to be the champion process-based chicken dish, then Dagadu claims Yogyakarta as a city that can lead to a comfort life for anyone who comes (nyAman means comfortable). Overall, the design tries to contradict globality with locality.

8.5. "Planet Semrawood" Design



Figure 5. The Logo of Planet Hollywood and the Design of Planet Semrawood

In the design of Planet Hollywood, Dagadu transform “Hollywood” into “Semrawood” said. The first lexia that can be read in this design is a hermeneutical code. An enigma appeared when the reader reads the word “semrawood”. Semrawood is the parodying word of “Hollywood”. It is the combination of two different languages. “Wood” in Indonesian is pronounced wud, when coupled with semra-, will generate a new word “semrawud” which is a play on the word “semrawut” (derives from Javanese) means chaotic. Thus, Dagadu encodes Planet Hollywood into Planet Semrawood, which means a chaotic/messy place.

The next code that can be read from the Planet design Semrawood is a semantics code. The semantic code reading will to an imaging of chaotic planet entirely different with the imaging that raises from Planet Hollywood restaurant. Planet Hollywood is identical with the modern life. On the contrary, by using semantic code reading, the reader can interpret the design of Planet Semrawood as a consumptive lifestyle brought by Planet Hollywood restaurant.

9. The Ideologies Behind the Dagadu’s Designs

Although since Dagadu was born it already had a firm commitment to criticize about the conditions around it, particularly with regard to issues of local Indonesian culture (read: the culture of Jogja), on the other hand however Dagadu that has become part of the cultural industries, will keep dragging us to be consumers. Dagadu is part of a business that still consider the profit that they earn so that their business can continue to run and support the people who support its operations. These actually are the two principals; cultural leg and economy leg that hoped to be able to go hand in hand explained Marsudi (The Creative Director of PT. Aseli Dagadu Djogdja). The cultural leg manifests itself in a variety of designs that demonstrate the locality of Jogja, although there is a possibility these kind of designs do not have selling points. However, idealism to commit to lift the endangered culture at a given time is greater than the desire to make a profit. That commitment also arises from the so-called oblongpedia designs that elevates the historical aspects and the cultural aspect of Jogja which has spawned three series, namely heritage, puppets, and topography.

That is Dagadu. Behind the various designs that are counter-hegemony toward Americanization, ideology, Dagadu proposes the nationalism (through the concept of “Jogjanization”) by lifting the

locality of Jogja in its parodying designs. On the other hand, Dagadu still carries the ideology of capitalism as an effort to spin the wheels of the business continues to become a new empire in the world of creative design.

10. Conclusions

From the analysis of the designs that are counter-hegemony toward Americanization that has been done as well as a review of the results of interviews with the Creative Manager and Creative Director of PT. Aseli Dagadu Djogdja, the conclusions that can be drawn from this study are:

- This study proves that the theory of hegemony and counter-hegemony echoed by Gramsci that domination of a force against a group of people by other people is conducted without coercion, the society often receive the domination by consent. In this study, America as a power in the various aspects of life, including culture, does hegemony to Indonesian society. This phenomenon brings to the thought of resisting americanization. Dagadu fights Americanization with Jogjanization. If drawn conceptually, it can be concluded that the cultural hegemony of a society can be countered with the production of locality.
- Dagadu tries to fight against the hegemony of American culture by parodying symbols from America with the locality of Jogja. The locality of Jogja becomes a 'tools' used to fight the domination. Americanization encountered with Jogjanization. Thus, Dagadu proposes nationalism along with capitalism, because the counter-hegemonic designs are financially profitable for Dagadu.
- Many of studies in communication related to fashion sees fashion as a tool for cultural hegemony. This study specifically shows how fashion used as a means of a resistance against hegemony. Dagadu as the representation of the youth with special characteristics; rebel and often eccentric, is a fashion that is part of a medium of communication, and it puts itself as a communicator that encodes globalized locality.
- This study answers Ritzer's question that resistance against Americanization does not have to always be done in a radical way, such as the bombing of the World Trade Center, but it can be done in creative ways that are not extreme.
- The historical and cultural background that makes the city of Jogjakarta becomes a cultural city, bring a strong influence for the born of many critical culturalists. Dagadu is one of the preservation actor of the local culture who was born in Yogyakarta. Through its products, Dagadu do counter-hegemony movement against Americanization. As a youth culture, Dagadu tries to foster a sense of nationalism among its consumers.

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The logo for the International Association for Cultural Studies (iafor) is centered on the page. It features the lowercase letters 'iafor' in a light blue, sans-serif font. The text is enclosed within a large, stylized circular graphic composed of two overlapping, thick, curved lines. The upper-left portion of the circle is a light red color, while the rest of the circle is a light blue color, matching the text. The lines are slightly irregular, giving the logo a hand-drawn or artistic feel.

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The Role and Impacts of Social Media in Social Movements: “Example of the Arab Spring”

Şükrü Balci, Abdulkadir Gölcü

Selcuk University, Turkey

0364

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Abstract

With the developments in communication technologies, people have experienced big transformations about communicating and sharing information in their daily and social life. New communication networks provided by these developments allow people to get more reliable and secure information or knowledge. That is, people can get first-hand information directly without using secondary sources. Social media tells the usage of mobile vehicles effectively on internet. According to this kind of communication style, users can show their personal interests, share photos or videos with other users by using their personal pages. Members can also see others' personal pages and they can communicate by using instant messaging part of personal pages. Content shared in social media can be spread quickly and people can get possibility of arguing these contents and information. These possibilities provide social media to play an important role in political spectrum. For example, in last three years social movements organized by using social media could overthrow oppressive governments or dictators in North Africa and Middle East. These examples prove that social media has gained an importance determining politics and social movements. In this study, impacts and importance of social media on “Arab Spring” which is going on increasing its importance in Middle East will be taken in hand and specifically the study will focus on the role of social media on “Arab Spring”. Eventually it was understood that social media is not the results of “Arab Spring”, actually it has turned into a vehicle which made huge contributions to these social movements.

Keywords: Social Movements, Arab Spring, Social Media, Social Networking Sites (SNSs)

Introduction

In recent years, the most appropriate way to explain the political change in Arabic world has been internet, mobile phones and the social networking such as Facebook and Twitter. The masses in the expectation of democracy have not only produced large sharing network through using those technologies but also organized their political responses at unprecedented speed (Howard & Hussain, 2011: 35-36).

According to some researchers, social networking sites are the basic driving force behind the social movements which were started against authoritarianism and oppressive regimes in Northern Africa and Middle East (Webster, 2011; Cohen, 2011). Some other experts state that the role of social networking sites in the street demonstrations has been exaggerated. The authors in this group regard the key factors in the development of revolution as the failures of the oppressive and authoritarian states in resolving the problems such as unemployment, backwardness, financial problems, illegality, and illegitimacy (Allagui & Kuebler, 2011; Tüfekci & Wilson, 2012).

As Tüfekci and Wilson'un (2012: 365) stated, social networking forms only a part of the political communication system which emerges in the Arabic Geography. According to the authors, new political communication system has three structures which are connected to each other and interpenetrated. The first one is the television channels such as Al-Jazeera which broadcast on satellite and provide contributions to the formation of a new generation in the Arab world. The second is the decreasing cost of the mobile phones and their dimension from the point of sharing materials such as video and photograph. The third one is the rapid proliferation of the internet and social networking sites such as Twitter and Facebook which change the infrastructure of social interaction.

The significance of social networking sites in the formation of political activism in the Arab Geography has become more apparent by years. Among the 70 street demonstrations from 2004 to 2011 in Egypt, for example, 54 of them were organized online (Lim, 2012: 232). In this respect, both demonstrators and dictators immediately understood that new communication technologies and mobile phones form a significant information infrastructure for political discussion. Especially, the constraint of freedom of assembling meetings and the difficulties of women in participating in those meetings in the Arab countries having oppressive regimes lack of democracy was sorted out to some extent (Howard & Parks, 2012: 360).

In this study designed from the literature review, the political and social developments in the Arab Geography will be discussed; social movements will be conceptually defined; the role of media in the social movements will be theoretically introduced. After those theoretical discussions, in accordance with the basic objectives of the study, the role and importance of the social networking sites in the Arab Spring will be presented to the readers.

1. Social Movements: A Theoretical Perspective

When the literature review is carried out, the increase in the amount of studies carried out in the world about social movements. The interest of scientists who work within different disciplines of social science about the social movements and the literature developing related to the topic may be seen as a result of the changes social sciences have been experiencing during the twentieth

century. Of course, it is possible that social movements have a response in the classical scientific conceptions and theories. However, the discussions in the philosophy of social sciences and developing new approaches caused reconsideration of social movements and the discussions related to it in various platforms (Akın, 2012: 88).

Social movements occur in the form of a definite organization as a result of encountering a structural compound containing numerous contradictions in the principle. From the point of system, every movement causes the interference of political tool that aims to protect the regime, namely, the opposite movement. Basic request of all the social movements is to reach a more democratic and more equal ideal of the world (Işık, 2012: 6-7).

One of the most significant characteristics of social movements is their foundation on the interactions between the individuals. In fact, the quality and maintenance of the interaction make the social movements more effective. The prerequisite of contributing this success lies in the conclusion they reached as a result of interaction through reuniting the knowledge, savings, expectations and hopes of the individuals in the interaction and jointly embrace the obtained production (Uyar, 2003: 137). According to Çetinkaya (2008: 26), the interaction of the organizers of the movement and the use of various social networks play a significant role in the emerging of a movement beside the political system covering it.

At this point, public opinion has always been a tool since the objective of social movements is to affect the decision mechanism as much as possible through numerous activities. For that reason, the social movements show the inclination of continuously forcing the individuals in the decision mechanism on political and administrative fields to a definite behavior through the public support. In order to execute it, it may develop a sense of cooperation through often interacting with other social groups (Kılıç, 2009: 155).

The social movements which progress through dynamism produced by cooperation are collectively resisting to the imposition of the system which they have been protesting through conflicts. At this point, social activities are formed through a “*collective interaction*” as a form of collective behavior (Işık, 2013: 14). In fact, the quality and maintenance of the interaction make the social movements more effective. The prerequisite of contributing this success lies in the conclusion they reached as a result of interaction through reuniting the knowledge, savings, expectations and hopes of the individuals in the interaction and jointly embrace the obtained production (Uyar, 2003: 137). Again, social movements have the potential of being significant tools of political participation rather than only political interests or the expression of the political opponents (Dirlik, 2008: 69).

Shortly, the problems related to the social relations existing in a society may pile up and turn into a driving force of a process of change. Such problems generally affect the social groups such as definite communities, nations, classes, racial, ethnic and social groups, religious and political grouping and others. The process may begin when some people internally interrogate and reject some aspects of status quo. The process will gain a social identity when people discover that the others also had similar experiences, point out same questions, and show the tendency of raising same objections (Işık, 2013: 19).

2. The “Arab Spring” as a Social Movement

In the large geography containing North Africa and Middle East, the grassroots movement which finally overthrows the dictators who remain in the office for almost two generations which national leader join and leave political scenes during their ruler ship and have the capacity of remaining in the power unless they are interfered at the end of a few months of bloody struggles are called “Arab Spring”. It is a coincidence that this process which began in the “Winter” of January 2011 and matured during the spring months released the majority of Arab societies from the Winter conditions which they have been experiencing for many years and were nearly frozen from the perspective of political development and put into the mood of spring which is the symbol of hope (Kibaroglu, 2011: 26; Erdem, 2012: 166).

The Arab Spring which has caused huge changes in the Arab world, has spread from country to country through domino effect, having similar slogans and demands despite basic differences at national level, it is not known where and when they will end and has had a tremendous impact with its denomination created a response to the negativities such as political corruption, chronic unemployment which is worsening day by day, discrimination in the economic and politic administration and restriction in the freedom for expression and created convulsive effects in the Middle East within a short time (cited by; Duran & Özdemir, 2012: 185; Öztürkler & Keskingöz, 2012: 19). Besides, some events on a small scale were observed in non-Arab countries such as Iran, Albania, and Armenia (Paksoy et al., 2012: 49).

The Arab Spring began for the first time in Tunisia on December, 18 2010. An unemployed university graduate, Muhammed Bouazizi, who was peddling on the streets, set himself into fire and started the rebellion which has overthrown the government (Howard & Hussain, 2011: 36; Doğan & Durgun, 2012: 62). The rebellion which started in Tunisia set an example for the other Arab countries and spread to North Africa and Middle East. While the Arab Spring was the most effective in Tunisia, Algeria, Egypt, Libya, Bahrain, Jordan and Yemen, it was effective on a small scale in Mauritania, Saudi Arabia, Oman, Syria, Iraq, Lebanon and Morocco (Çildan et al., 2012: 7).

After Tunisia, the Arab Spring which has caused internal war in Egypt and Libya caused serious changes in the government and internal structure of the country within the year of 2011. In Egypt, Hüsnü Mübarek who had been ruling the country for thirty years had to resign. Although the effects of the Arab Spring are clearly observed also in Syria, Beşar Esad is on the way of being overthrown by both internal war and the oppression of foreign powers. The revolution which rapidly spreads caused very heavy results in Libya. Not only Muammer Kaddafi, the head of the state for 42 years, was overthrown but also he was killed by the lynching attempt of the opponents. The council of ministers had to resign in Kuwait in the civil insurrections following the Arab Spring. In Iraq, the Prime Minister Nuri El Maliki stated that he wouldn't be a candidate in the following elections and some local administrators and governors were discharged. In Bahrain, political prisoners were set free and some privileges in economic field were granted. In Morocco, a struggle started against abusiveness due to economic problems and it was decided to conduct a referendum. After the elections, the government has changed. In Oman, the legislative prerogative was given to the congress and a step of democratization was taken. The new order was established with the overthrown of the government in Jordan. In Yemen, some congressmen from the ruling party were forced to resign. Moreover, the President of Yemen, Ali Abdullah Salih, had to resign in exchange for privileges. In Algeria, the public emergency of the Prime Minister of Algeria which had been going on for 19 years was abolished after huge protests and

rebellions. Sudan President, Hasan Ahmed El Beşir, stated that he wouldn't be a candidate for the elections to be held in 2015 (Eldoğan, 2012).

While defining the background of developments happening in the Arab world, it is necessary to put emphasis on some truth. In most of the countries in Arab geography, there were closed government structures which haven't changed for many years and has been resisting to changes into some extents. Although some of them were kingdoms and the others possessed the name of Republic, their common understanding is the authoritarian and society expelling models. Nevertheless, there is a continuous economic jumping the shark and unemployment at serious levels. Economic poverty, unemployment, desperation of educated youth, demographic oppression formed by the young population, high cost of living and lower level of incomes, social injustice and lawlessness, bribery and the fury caused by economic power and fortune of the leaders lacking of law and their relatives all triggered the social movements. Especially, the revolution on the techniques of communication and telecommunication which globalization brings out has cleared out the way for democratic demands. From now on, people may be mobilized through new communication tools without needing traditional politic organizations. This change started processes which strengthen the Arab public movements and cause new changes. It is necessary to state here that the role of social networks such as Facebook and Twitter became more significant and more critical rather than television, newspaper and radio defined as traditional media in the Arab Spring. In the movements in Tunisia and Egypt, the new media played a key role. Moreover, the Revolutions of Egypt and Tunisia were also called as the "*Revolutions of Facebook and Twitter*" due to this role (Akbaş, 2012: 54-59).

While some people consider the Arab Spring within syber-activism; some others claim that the effect of social media has been exaggerated, the important thing in those movements was the structural structure and it had internal dynamics. However, such a social formation can be evaluated free from neither socio-cultural structure of the geography where it has developed nor current conditions which include globalization. Thus, while evaluating the social activism in the Arab Spring, socio-cultural factors which treats it on the background of "*rebellion policy*" and the revolutionary transformation which the tools brought by "*information age*" experienced in the global dimension in creating a new type of society (Kök & Tekerek, 2012: 60).

3. Social Movements and Media

A continuous interaction between the members of the movement and society is needed from the point of emerging and spreading of social movements. Thus, the process of exchanging information on social field begins. However, communication is not solely enough to create a social movement. For that reason, the most important aspect of communication is its help in revealing common values for both participants of the movement and those who are out of the movement. In the efforts of social groups who live in a political and social world in putting their identity to society, it is important to inform the individuals and groups through media (Işık, 2013: 4).

It is possible to list the contributions of media to social movements as follows (Raschke, 1987: 21; cited by; Kılıç, 2009: 159-160):

a) First of all, media has a significant position in order to provide members to social movement. Media mediates huge masses through affecting them in accordance with the

objectives of movement. On the other hand, the authors in the media also contribute to the enlargement and strengthening of social activities.

b) Media facilitates the formation of a common identity for a social movement and strengthens we-feeling.

c) The success of a social movement generally depends on numerous factors. A wide communication network is needed besides the tools such the establishment of joint cooperation, provision of monetary sources, utilization of the experiences, the success of management and fame. Naturally, it is necessary to be open to the out of the group in order to carry out this. Media helps the social movement both in staying inside a unity and opening outwards. The unity established between social movements and media is supported with other collective actors (associations, party, non-governmental organizations) and gains the power to affect the politics in higher levels.

d) Media, mediates the people who are dominant in the political structure realize social movements and forces them to behave in accordance with the objectives of the movement. Thus, aforementioned problem begins to gain a political character.

Gamson and Wolfsfeld (1993) who state that media affects the spectrum of social movements also claimed that they were considerably dependent to media in order to provide help those movements are supported and have their status approved; they researched how media affected results through focusing the relation between social movements and media. According to the results of the study, the characteristics of a social movement affect the framing style and sympathy of media. The authors emphasized the significance of organization, professionalism and strategy planning and determined that entertainment visual values of the movement created effect (cited by; Şen, 2012: 146).

At this point, it is necessary to consider social movements and virtual activities as two concepts which mutually cooperate with each other not externalize each other. Although classical movements include the types of activities such as strike, demonstrations and marching, hence, such activities have the potential of virtually materializing. Today, many examples of organization on the internet and classical social movement activities are seen to occur. Even, virtual actions executed on the internet organize and gain the potential of maintenance. For that reason, the actors of social movements even establish internet sites in order to be organized and spread the movement (Işık, 2013: 67).

In the social media environments which is based on dual conversations and discussions, which traditional media couldn't provide due to its structure; opponent and alternative expressions, which are not seen in the traditional media may freely find travel ranges. Even, the spoken and discussed topics may find place in traditional media thanks to the power of audience and supporters with the emerging effect (Erbay, 2012: 150-151).

4. Social Networking Sites (SNSs)

Social Networking Sites draw attention as environments designed to develop social interactions in the virtual environment. In such a communication style, the user can exhibit their interests on their personal pages; share their photos and images with other people; or may present data to people about their information (Special & Li-Barber, 2012: 624; Lee & Ma, 2012: 332). The members may see the profiles of each other and mutually get in touch thanks to the applications such as message section similar to email (Hughes et al., 2012: 561; Ellison et al., 2007: 1143). Such interactions appeal to the youth and those who are about to reach to the adolescence related to providing necessary information for friendships or relationships (Pempek et al., 2009: 228; Muscanell & Guadagno, 2012: 107).

In the social networking sites, different from the other mass communication tools, sending messages and receiving feedback both occur at the same time; this provides a more effective communication between the parties. However, the users in the social networking sites environment are producers at the same time. Namely, the people using the social networking sites produce the content of the media themselves. Social networking sites, compared to other mass communication tools, are communication environments with availability at individual levels. Whereas, the tools such as television, radio, newspaper etc. send their messages to the masses. On the other hand, social networking sites are also collectively used. Official fan pages of the celebrities in the society express a mass-oriented communication environment rather than inter-individual communication. Social networking sites provide people the opportunity to execute communication of small groups. A few people may get in touch through Facebook, Twitter or MSN at the same time. While mass communication tools such as newspapers, radio, television and cinema are run in the professional manner; there is no need for any professional manner in social networking sites. Social networking sites have exceeded the limitedness of time. For example, a definite program on television can be watched by only in a definite period of time. However, the person who wants to get in touch in the environment of social networking sites may send his mail to the other parties whenever he desires. The other parties become open into the social media environment whenever they like and receive the sent message (Güngör, 2011: 312-314).

5. The Role of Social Media in Social Movements: “The Arab Spring”

After the public movements began in the Middle East and Northern Africa during the first months of the year 2011 utilized from social media as a tool of organization and communication and the experienced social movements are called “*Social Media Revolution*” (Khondker, 2011: 677; Howard & Parks, 2012: 360); the significance of social media and its effect is continuously being discussed. People were organized meetings and broad participation demonstrations through being organized with other social networking sites such as Facebook and Twitter. The dominant communication tool in the encountered public movements during this process, the social networking sites which is used with the purposes such as socialization, entertainment and develop social capital, forms an important aspect of the efforts to understand the events experienced in the region (Babacan et al., 2011: 77).

According to Bostancı (2011), the people who possess similar ideas in the Middle East geography before the Arab Spring and are opponent to the regimes had no idea about the existence of necessary massive support related to changing the regime and the level of power they have. Because; the limited public negotiation in tyrant regimes prevents people from making opposition to the government. Everybody is forced to live with a quiet and isolated fury in their own sole

world. In such an environment, social networking sites (*the courses which the government ignores*) have enabled the opponent powers understand that they have similar power, rapid organization and take to the streets. Twitter, Facebook, mail groups, and SMS's of mobile phones were used for purposes much more different than its functions in Western countries. In fact, those tools transformed the appearances and activities of the revolutionist powers into a mirror they have been watching. In one sense, it was witnessed that the *Spiral of Silence*^{*} was broken. The Egypt government immediately banned the internet, wound the mobile phone companies up and tried to control the social media in order to quell the events; it is significant for understanding the effectiveness of those tools in the Arab Spring. Since the genie is out of the bottle and the masses realized their power and the weakness of the opposite party, however, the precautions of the government didn't work enough.

Another point to be determined here is; as it is traumatically seen in the example of Arab Spring, social networking sites bring freedom of behaviors to the people who have been isolated from identities. The people of Arab geography who found place for them in the social media through covering their faces with masks have the chance of making all their angers and discomfort they have been piling up against tyrant administrations in their daily lives (Bostancı, 2012).

On the other hand, it may be said that the country where the effects of social media was mostly felt was Egypt. When it was 2008, there were 300 thousand blogs in Egypt and 10 thousand of them had political content. In Egypt, the Movement of April 6 and the invitation for it sets a good example for the use of social media. A blog writer who is a member of the group states that "*even they hadn't thought that the events would have such big conclusions after the invitations*". One of the most significant factors in gathering such a big crowd in Tahrir Square on January the 25, 2011 is the social media. It is known that people discussed the applications of the government they didn't approve using social media in Egypt before the Arab Spring. For example, forcing incursion of security forces to houses, being suspicious enough to be arrested and tortures under arrest have been shared and discussed in the social media environments. Even some videos of torture were uploaded to YouTube. In conclusion, it can be easily said that social media provided significant contributions in the preparation of intellectual background for the Arab Spring (Tekek, 2011).

Again in June 2010, the young computer programmer Khaled Said distributed the videos related to the police and drug dealers through channels such as YouTube and Facebook and lost his life after he was arrested in an internet café in Alexandria by the police; thus, it increased the effect and power of the protests in Egypt. The number of the members in the Facebook group of Said who has turned into an icon of the revolution with a site opened under his name reached to 1.5 million during the protests in Egypt (Erbay, 2012: 156; Khondker, 2011: 677).

During the Arab Spring process, the easy control of traditional media increased the interest to new media and social networking sites. For example, an explanation broadcasted from Twitter

* **Spiral of Silence** is a communication theory introduced by German Sociologist Elisabeth Noelle-Neumann (1984). According to Neumann, the people who live in the social life with the fear of exclusion and isolation continuously observe and inspect the common thoughts around them and which of them were out of date. So long as their ideas become spread, they clearly express them; nevertheless they hide their opinions so long as their opinions gain marginal aspects (Mutlu, 1998: 321).

account of an Egyptian cyber activist during protests against Mubarek government in Egypt saying; “we used Facebook to determine the times of protests, Twitter to organize the protestors and YouTube to announce those protests to the world” (Bhuiyan, 2011: 16) is rather eye-catching.

Again, another topic to be pointed out is; the number of the users of new media and social networking sites doesn't exceed the 20% of the population although traditional media was widely disseminated in the Middle East before and during the process of Arab Spring. However, these sections of 20% who can use internet in Egypt form the educated and elite part of the society. In a sense, those people who successively organize and execute the civil disobedient activities against oppressive and tyrant administrations come into prominence (Howard & Hussain, 2011: 47).

In the process of time, the development and wide-spreading of new communication technologies caused the transformation of communication methods between the social actors. With the domino effect of Arab Spring at the beginning of the year 2011, especially, social networking sites gathered the opponents under a roof, organized them, and provided the mobilization of masses against dictators. In fact, political and social responses in every country against locally executed injustices were carried out on the social networking sites (Howard & Hussain, 2011: 48). In some ways, as can be seen in the Revolution of Tunisia and Egypt social networking sites played the role of catalyzers. Thanks to new media and social networking sites, local social responses were presented to global public opinion in a definite harmony (Benkirane, 2012: 1).

In conclusion, we can say that this new media environment which is called as social media or “*the second media age*” protected its functionality as a significant communication tool in the Middle East, Northern Africa or any part of the world. However, there are points to be taken into consideration and questions to be answered; *would there be revolution or public movements unless there wasn't social media? Or, wouldn't the fury accumulated after prolonged social pressures or absences be revealed in any way?* Describing the experienced events as the revolution of social media or the revolution of Facebook/ Twitter causes ignoring developments which are significant from the point of the history of the Middle East or the World through paying attention to technological power and role in the West (Babacan, 2011).

When the findings of the study which Darmoni and Poell (2011) analyzed 100 thousand tweets related to the use of social media in the Arab Spring; similar evaluations may be made. According to the authors, the effects of social networking sites can't be understood without recognizing the political, economic and social atmosphere in the Middle East. Moreover, it seems hard to determine without defining who use the social networking sites, the topics the users write about and which language they have been using (Benkirane, 2012: 2). Moreover, putting the blame only on social media related to goings-on in Arab countries such as Egypt and Tunisia has no effect other than camouflaging the real powers to blame. Mass communicative tools, especially the effects of social networking sites, have occurred only at the level of negotiation. Thus, there is no need to reconsecrate McLuhan (Güngör, 2011: 312; Lim, 2012: 234).

Moreover, it is necessary to express that there is need for long-term researches under the light of future developments and experiences in order to reach to final conclusions related to the functions of social media in the process. Socio-economic factors in the countries where the protest wave takes place, the geo-political atmosphere which occur in the countries, the rates of using internet

and social media, the demography of the users, the preference and objectives of use, the periods and density of those courses will be determined through future analyses (Erbay, 2012: 150).

Discussion and Conclusion

The use of social networking sites is rapidly increasing and this enables people freely share their ideas on the internet, establish rapid and mutual communication and be easily organized. Especially, people can easily express their ideas and democratic demands due to the difficulty of censoring on the social networking sites. In this sense, social networking sites found an effective field of use in politic area.

The social movements which began in the Arab geography at the beginning of the year 2011 and is still going on began social networking sites as a tool of meeting and organizing requires analytic thinking on social media and the Arab Spring. In the revolutions in the countries of Middle East and Northern Africa; social networking sites have been used as tools in the occurrence and enlargement of connections, solidarity and organization between various groups and individuals. The members of those networks produced revolutionist messages and succeeded in distributing those messages to their families, close friends and joinders of their parties through mobile phones and digital media. Moreover, the produced revolutionist messages were also distributed to main stream media and satellite channels. Through the most significant of those channels, Al-Jazeera, the revolutionist messages were delivered to people having no internet in the countries such as Tunisia and Egypt.

Social networking sites enables different groups opponent to oppressive regimes in the Arab world both gather under the same roof and make the illegal activities of the authoritarian regimes and their armed forces visible. The desire for democratic change in the Arab world which gather the common values the people having similar thoughts and anxieties was transferred to global public through social media.

However, it is rather difficult to say that social networking sites solely created the Arab Revolution. The basic causes of social movements in the Arab world, as has been stated previously, the failure of the oppressive governments in sorting out problems related to unemployment, backwardness, economic problems, lawlessness, unlawful people and human rights. If social networking sites are considered as the reason or starter of social movements, the main reality will be overshadowed. Social networking sites has functioned as a tool not an objective for Arab population in realizing that they have similar anxieties, speak up their democratic demands louder or becoming organized.

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*Preliminary Findings on the Willingness to Participate in Oral Cancer Screening
among High Risk People; A Study of a Muslim Predominant Community in
Narathiwat, South Thailand*

Srisuk Khwankong, Duangporn Kerdpon, Hutchu Sriplung

Prince of Songkla University, Thailand

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Abstract

Objective: This research aimed to study the willingness to participate in oral screening among high risk people who have practiced long term smoking and betel quid chewing in one Muslim predominant community in Narathiwat province, Thailand.

Method: This cross-sectional study adopted five distinctive variables of the Health Belief Model Theory in explaining the willingness to participate in oral screening. A total of 255 high risk adults 40 years of age or older were sampled by stratified random method according to their habits of smoking, chewing and both habits. A questionnaire-based interview was used to collect data.

Results: The participants were 65.5% males. The mean age was 63.1 (SD = 11.7) years, ranging from 41 - 93 years. There were 52.1% smokers, 16.5% chewers and 31.4% practicing both habits. Most of them reported never having an oral screening experience (99.2%) yet were willing to take the screening (89.8%). Participants willing to participate in oral screening had significantly higher knowledge regarding oral cancer risk factors than the unwilling individuals ($p < 0.05$). The study also proved that the willingness to participate in oral screening among high risk people significantly related to their perceived barriers and self-efficacy (both *chi-square p-values*, <0.001).

Conclusion: The willingness to take oral screening among high risk people in the study was of a satisfactory level. The significant factors relating to willingness were knowledge, perceived barriers and self-efficacy. The results from this study could be applied in a strategy plan to promote willingness to participate in oral cancer screening.

INTRODUCTION

Oral cancer is one of the major public health problems in many Asian countries including Thailand.(1,2) The incidence rate of the disease in this country is 5.9 per 100,000 of the population which is 1.5 times greater than world incidence.(1) More than 4,000 new cases are diagnosed yearly, but unfortunately 50% of cases die from it.(1,2)

Tobacco use, betel quid chewing and alcoholic consumption are established risk factors for oral cancer.(3) The most prevalent current and daily smokers are observed in male individuals who live in the southern region.(4,5) Data from Thailand's cancer statistics also reveal the high incidence rate of oral cancer in males in this region.(2)

Narathiwat is one of the 4 southernmost provinces of Thailand (Narathiwat, Pattani, Yala and Songkhla) that border Malaysia (Figure 1).(6,7) It is 1,140 kilometers from Bangkok.(8) Most of the Thai people are Buddhists.(9) However, this province has a unique characteristic(10) where almost 86% of the population are Muslim.(9,11) Most of the Muslims in the province have Malay ancestry and speak a unique Malay dialect in parallel with the Thai language in daily life.(11) Since 2004 until now, a separatist insurgency problem has occurred in this province and in 3 other neighboring provinces.(6,11,12) This problem directly and indirectly affects the health care system.(13) Patients may have some barriers to access medical services including routine physical examination and cancer check – up.(13) According to the referral system of Thailand's Ministry of Public Health, almost 90% of oral cancer patients in the region will be referred to receive advance treatment in Songklanagarind Hospital, Songkhla province, the oral cancer center in the lower South.(14) The study concerning oral cancer in Songklanagarind Hospital showed that nearly two – thirds of oral cancer patients presented with late stage cancer(15,16) and the mean time for patient delay was 3 months.(17) Moreover, Kerdpon and Sriplung(17) also revealed that total delay was significantly influenced by ethnicity; Muslims had more prolonged total delay than Buddhists in this hospital study.

Figure 1. Narathiwat, Pattani, Yala and Songkhla locations in Thailand map. (7)



It is widely accepted that early detection of oral cancer will improve its treatment prognosis and reduce mortality rate.(15,17–23) Prevention, health promotion and surveillance systems are important strategies of the World Health Organization (WHO) in controlling oral cancer.(24) Visual screening of high risk populations was proven to be the most cost-effective strategy.(25–

29) Oral cancer examinations also offer health care providers an opportunity to identify patients who practice risky behaviors and counsel them about their risk of contracting cancer.(30)

Unlike other parts of the body, the oral cavity is easily accessible and an oral cancer examination poses relatively little discomfort or embarrassment for the patient.(31) However, a study from the U.S. National Health Interview Survey (NHIS) revealed that only 20 percent of the population received oral cancer examination(32), compared to 40 – 50 percent for colon cancer, 58 percent for breast cancer, and 54 percent for prostate cancer.(33) Since individual participation in oral cancer screening is relatively low, it is interesting to find out the factors to promote a higher oral cancer screening rate in high risk groups.

To predict why people take action towards a particular behavior was described by several behavioral theories.(34–36) The Health Believe Model (HBM) is one of the more widely used theories.(34) HBM was developed initially in the 1950s by Reoenstock (36) who studied individual's reasons for not participating in health screening programs. The underlying concept of HBM is that health behavior is determined by personal beliefs or perceptions about the disease and the action available to decrease its occurrence.(34) It postulates that psychological readiness to adopt a recommended health action depends on 5 basic dimensions including 1) perceived susceptibility: belief or perception about the chances of experiencing a risk or getting a condition or disease, 2) perceived severity: belief or perception about how serious a condition and its sequelae are, 3) perceived benefits: belief or perception in efficacy of the advised action to reduce risk or seriousness of impact, 4) perceived barriers: belief or perception about the tangible and psychological costs of the advised action, and 5) perceived self-efficacy: the conviction that one can successfully execute the behavior required to produce the outcome.(34,36)

To our knowledge, there is scarce evidence about the factors associated with oral cancer screening behaviors and screening rates among high risk individuals in Thailand, especially in the Muslim community. Alcoholic consumption is prohibited for Muslims(37), thus it is not an obvious risk factor for oral cancer in the community. The purpose of this study then is to study factors associated with willingness to participate in oral cancer screenings among smokers and/or betel quid chewers who are at high risk of contracting oral cancer in a Muslim predominant community in Thailand. Narathiwat is the community of choice because of its Muslim predominant community (86% Muslim population) and it is an area which has never had this study conducted before.

METHOD

This survey study adopted 5 distinctive variables of the HBM Theory in explaining the willingness to participate in oral screening. The participants were high risk adults of age 40 years or older (38) in one Muslim predominant community in Narathiwat, South Thailand. Prior Institutional Review Board approval from the Faculty of Dentistry, Prince of Songkla University was obtained.

A total of 255 respondents were sampled by a stratified random method according to their habits of smoking, chewing or both habits. All of the samples were face-to-face interviewed using the 50-items closed-ended questionnaire prepared by one of the authors (SK) in conjunction with an auxiliary trained translator. The survey intended to collect socio-demographic characteristics, past and current risk behaviors, knowledge regarding oral cancer risk factors, oral cancer screening experience, beliefs or perceptions regarding susceptibility to and severity of oral cancer, beliefs or

perceptions regarding benefits of, barriers and self-efficacy to oral cancer screening, and finally the willingness to participate in oral cancer screening. Written informed consent was obtained from the participants. In case they were not eligible to understand Thai, the translator verbally translated the consent form to them. If the participants agreed to take part, they signed or gave their fingerprint on the consent papers. Descriptive statistics were used to describe demographic characteristics (Table 1). Demographic data and the willingness to participate in the oral screening were tested for relation using the *chi-square* test (Table 2). Knowledge regarding oral cancer risk factors was compared between the willing and unwilling groups of participating in the activity using the *Student's t-test* (Table 3). Finally, relation between HBM variables and the willingness to participate in the oral screening were studied using the *chi-square* test (Table 4). The level of significance was accepted at 0.05.

RESULTS

Overall, 255 oral cancer high risk people were recruited in this study. About half had an income of more than 3,000 Thailand Baht (THB) or about 105 United States Dollar (USD) per month.(39) Three thousand THB per month is set near the Thailand's poverty line point of 2,422 THB or 85 USD per month.(40) Fifty eight percent of the recruits live in the area of the sub-district Health Center (SHC) where basic dental service is provided by dental hygienists. (See Table 1)

Table 1. Demographic characteristics of the sample.

| Variables | Characteristics | n (%) |
|-----------------------------------|----------------------------|-----------------|
| Gender | male | 167 (65.5) |
| | female | 88 (34.5) |
| Age | 40-59 | 97 (38.0) |
| | 60-older | 158 (62.0) |
| | $\bar{x} \pm SD$ | 63.1 \pm 11.7 |
| | Min-Max | 41 - 93 |
| Marriage | married | 189 (74.1) |
| | widow/divorce/single | 66 (25.9) |
| Education | at least primary level | 153 (60.0) |
| | uneducated | 102 (40.0) |
| Occupation | not working | 86 (33.7) |
| | agricultural | 93 (36.5) |
| | non-agricultural | 76 (29.8) |
| Monthly income | up to 3,000 THB | 118 (46.3) |
| | more than 3,000 THB | 137 (53.7) |
| Residential SHC | within dental service area | 107 (42.0) |
| | without dental service | 148 (58.0) |
| Behaviors | smoking | 133 (52.1) |
| | chewing | 42 (16.5) |
| | both habits | 80 (31.4) |
| Oral screening experience | yes | 2 (0.8) |
| | no | 253 (99.2) |
| Willingness to participate | yes | 229 (89.8) |
| | no | 26 (10.2) |

The willingness to participate in oral cancer screening of the respondents was significantly related to gender ($p = <0.001$), age ($p = 0.006$) and monthly income ($p = 0.02$) shown in Table 2.

Table 2. The relations between characteristics and the willingness to participate in oral cancer screening using χ^2 and Crude Odds Ratio.

| Characteristics | Willing | Unwilling | Crude Odds Ratio | 95% CI | chi-square p value |
|----------------------------------|---------|-----------|------------------|--------------|--------------------|
| Gender | | | | | |
| male | 159 | 8 | 1.00 | | <0.001* |
| female | 70 | 18 | 5.41 | 1.38 – 21.16 | |
| Age | | | | | |
| 40 – 59 | 94 | 3 | 1.00 | | 0.006* |
| 60 – older | 135 | 23 | 5.20 | 1.18 – 22.84 | |
| Marriage | | | | | |
| married | 174 | 15 | 1.00 | | 0.08 |
| widow/divorce/single | 55 | 11 | 0.74 | 0.24 – 2.25 | |
| Education | | | | | |
| at least primary level | 141 | 12 | 1.00 | | 0.19 |
| uneducated | 88 | 14 | 0.85 | 0.32 – 2.28 | |
| Occupation | | | | | |
| not working | 72 | 14 | 1.00 | | 0.07 |
| agricultural | 87 | 6 | 2.62 | 0.66 – 10.40 | |
| non-agricultural | 70 | 6 | 1.64 | 0.40 – 6.64 | |
| Monthly income | | | | | |
| up to 3,000 THB | 100 | 18 | 1.00 | | 0.02* |
| more than 3,000 THB | 129 | 8 | 2.90 | 1.21 – 6.95 | |
| Residential SHC | | | | | |
| with dental service | 99 | 8 | 1.00 | | 0.31 |
| without dental service | 130 | 18 | 2.32 | 0.88 – 6.10 | |
| Risk Behaviors | | | | | |
| smoking | 125 | 8 | 1.00 | | 0.08 |
| chewing | 34 | 8 | 0.82 | 0.26 – 2.62 | |
| both habits | 70 | 10 | 1.16 | 0.36 – 3.70 | |
| Oral screening experience | | | | | |
| yes | 2 | 0 | | | 0.51 |
| no | 227 | 26 | N/A** | N/A | |

* significance

** Not applicable

The knowledge regarding oral cancer risk factors is statistically compared in Table 3. Significant differences between the willing and unwilling groups were observed ($p = 0.008$). The willing group was more knowledgeable regarding oral cancer risk factors than the unwilling group.

Table 3. The difference of knowledge between the willing and unwilling groups.

| Knowledge | Willing Mean (SD) | Unwilling Mean (SD) | <i>t</i> | <i>p</i> value |
|------------------------------------|----------------------|------------------------|----------|----------------|
| regarding oral cancer risk factors | 5.52 (2.26) | 4.27 (2.38) | 2.66 | 0.008* |

* significance

The study found that the willingness to participate in oral screening among high risk people significantly related to their perceived barriers and self-efficacy (both *chi-square p-values*, <0.001). (Table 4)

Table 4. The relation between HBM variables and the willingness to participate in oral cancer screening using χ^2 and Crude Odds Ratio.

| HBM Variables | Willing | Unwilling | Crude Odds Ratio | 95% CI | <i>chi-square p</i> value |
|---------------------------------|---------|-----------|---------------------|--------------|-------------------------------|
| Perceived susceptibility | | | | | |
| more perceived | 22 | 4 | 0.59 | 0.17 – 2.55 | 0.56 |
| less perceived | 207 | 22 | 1.00 | | |
| Perceived severity | | | | | |
| more perceived | 115 | 13 | 1.01 | 0.41 – 2.48 | 0.98 |
| less perceived | 114 | 13 | 1.00 | | |
| Perceived benefits | | | | | |
| more perceived | 186 | 17 | 2.28 | 0.84 – 5.86 | 0.10 |
| less perceived | 43 | 9 | 1.00 | | |
| Perceived barriers | | | | | |
| more perceived | 63 | 25 | 0.02 | 0.00 – 0.10 | <0.001* |
| less perceived | 166 | 1 | 1.00 | | |
| Perceived self-efficacy | | | | | |
| more perceived | 204 | 5 | 33.4 | 11.0 – 123.9 | <0.001* |
| less perceived | 25 | 21 | 1.00 | | |

* significance

DISCUSSION

Some demographic data (age, gender and monthly income) were significantly related to the willingness to take part in oral screening in this study. The result was consistent with a previous study that showed the significant factors of some demographic data of gender, age, and risk behaviors.(41)

The present study showed that the willing group was more knowledgeable regarding oral cancer risk factors than the unwilling group. It was consistent with the previous findings which revealed that knowledge was found to be the strongest predictor of participating in oral cancer screening.(42–44)

Concerning the HBM, the willingness to take part in oral cancer screening among high risk people significantly related to their perceived barriers and self-efficacy. This result is in accord with the studies of Noroozi and Tahmasebi(45) and Tavafian *et al.*(46) regarding breast cancer screening behavior, where only the 2 mentioned variables also reported significant predictors. Moreover, some studies found only perceived barriers as the most single important predictor for breast cancer screening(47,48), whereas some have found perceived self-efficacy as the most powerful predictor.(49,50)

The relatively high rate of willingness (89.8%) to participate in oral cancer screening was quite consistent with the result of a previous study (70%).(51) However, the real behavior for the routine oral cancer screening rate was reported at only 20%.(32) The real behavior was not included in this research. The questions of whether personal perceptions about the disease and willingness to perform the behavior have any impact on actual behavior remain unsolved. Therefore, additional studies are required to further explore these impacts.

In conclusion, the willingness to participate in oral cancer screening among high risk people in the study was of a satisfactory level. The significant factors related to willingness were knowledge, perceived barriers and self-efficacy. Strategies that could help promote willingness to participate in oral cancer screening could perhaps include emphasizing knowledge delivery regarding the disease risk factors, reducing all possible barriers and motivating them to reach the desirable action.

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*An Empirical Study about Social Factors and Pro-environmental Behaviors in
Southeast Asia*

Jia Li

University of Niigata Prefecture, Japan

0391

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Abstract

This study aims to investigate the various factors affecting environmental behaviors of the residents in ASEAN countries. To achieve the objective, the data from questionnaire survey "ASEAN Barometer 2009" (sample number of completed questionnaire = 9,080) were used to examine the relationships among demographic characteristics, information access, environmental concerns and environmental behaviors. The data were analyzed using analysis of variance (ANOVA), correlation analysis and path analysis. The empirical results showed that, first, demographics often appeared in previous studies including gender, age, education, income and residence are the determinants of environmental behaviors in ASEAN countries as well. Secondly, policies with economic incentives might largely change people's environmental behaviors in ASEAN countries, in particular, people's participation level in public environmental activities. Thirdly, improved information access through education campaigns and public environmental activities might be effective ways to change ASEAN residents' individual (household) behaviors in terms of environmental protection.

Keywords: social factors, pro-environmental behaviors, environmental concerns, ASEAN Barometer

1. Introduction

Over the past four decades, social scientists have conducted numerous studies on investigating individuals' motivations underlying pro-environmental activities. The reason for this line of studies is that, human behaviors are altering the environment at an unprecedented pace during the 21st century; many of the current environmental problems, more or less, are the consequences of those behaviors. Therefore, it requires the behavior changes while seeking the solutions to environmental problems. The central presumption of this line of studies is that, in general, individuals' environmental behaviors are directly influenced by the degree of their environmental concerns. To be exact, individuals are likely to become engaged in pro-environmental behaviors to the extent that environmental problems have threatened various objects they value, and they are aware of the harmful impacts. This insight is largely captured in a series of studies of Value Belief Norm (VBN) theory (e.g., Stern *et. al.*, 1993; Stern and Dietz, 1994; Stern *et. al.*, 1995; Stern, 1999; Stern *et. al.*, 1999; Stern, 2000). Those studies argued that that environmental attitudes are the result of a person's more general set of values, which are further classified into three distinct dimensions, i.e., egoistic, altruistic, biospheric.

The above-mentioned presumption, in consequence, stimulated another line of studies which investigated the genesis of individuals' environmental concerns. Although several previous studies have attempted to document the value structure behind environmental behaviors and concerns, empirically, both lines of the studies have increasingly addressed the relationships between environmental indices with various factors including age, gender, education, income, and residence (e.g., Arcury and Christianson, 1990; Baldsare and Katz, 1992; Howell and Laska, 1992; Adeola, 1994; Lyons and Breakwell, 1994; Davidson and Freudenburg, 1996; Zelezny *et al.*, 2000; Aytulkasapoglu and Ecevit, 2002; Dietz *et al.*, 2002; Hunter *et al.*, 2004; and Deng *et al.*, 2006). These factors consist of the social bases of environmental concerns and behaviors. To date, though plenty, vast majority of the empirical studies investigated the issues in developed countries. Regarding developing countries, the studies are few possibly due to the lack of data. Particularly, there is hardly any empirical study of ASEAN countries. This study is thus the first attempt in this respect.

ASEAN's approach to environmental problems has stressed on regional cooperation, particularly, the cooperation for environmental education. ASEAN member countries have developed their own action programmes of environmental education since the first International Conference on Environmental Education held in Belgrade in 1975 (ASEAN Environmental Education Action Plan (AEEAP) 2008-2012). According to the latest AEEAP 2008-2012, ASEAN's move toward regional cooperation on the environment dates back to 1977 with drafting of the first ASEAN Subregional Environment Programme (ASEP I). This was followed by ASEP II (1982 - 1987) and ASEP III (1988 - 1992). All these three programmes had, as one of six priority programme areas, Environmental Education, Training and Information. The latest AEEAP 2008-2012, succeeding the AEEAP 2000-2005, clearly states its aim to improve people's awareness of environmental issues through formal and informal education, and consequently enable them to participate as active and informed citizens

in pursuing sustainable development. It is therefore valid to treat the issue of environmental behaviors in ASEAN as a whole. In addition, it is of importance to trace the impacts of environmental education on environmental concerns, and then trace the impacts of environmental concerns on individual behaviors in ASEAN. Specifically, this study attempts to identify the following relationships.

1. The relationships between various individual/demographic factors and environmental concerns/behaviors.
2. The relationship between information access to environment-related knowledge and environmental concerns/behaviors. Note that, as explained in section 2, the dataset used in this study did not measure environmental education directly. We therefore use the level of ordinary residents' information access to environment-related knowledge as an alternative measurement.
3. The relationship between environmental concerns and behaviors.

The rest of this paper proceeds as follows. Section 2 presents the methodology of this study. The detailed data description is also provided in the section. In section 3, we report the empirical results and their implications. Section 4 concludes the study.

2. Method

2.1. ASEAN Barometer 2009

The present study was based on questionnaire survey "ASEAN Barometer 2009". It is a research project investigating public opinions on various issues of health and environment in ASEAN member countries. The project encompassed nine countries in ASEAN, i.e., Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. The questionnaire survey was conducted using the methods of stratified random sampling (three-stage or forth-stage depending on the country) with face-to-face interview through household visits from October 4th to December 30th in 2009. Different market research companies were involved to conduct the survey in different countries. The response rate differed largely from country to country. In each country, around 1,000 completed (valid) answers were collected. In the case of Malaysia and Myanmar, 1,024 and 1,056 valid answers were collected respectively. In the case of other countries, exactly 1,000 valid answers were collected. The detailed fieldwork summary is available upon request.

The questionnaire used in ASEAN Barometer 2009 is very comprehensive to incorporate 55 content questions and 10 demographic questions. The 55 content questions include three sections, i.e., health module, environment module and value module. This study only focused on six content questions, - Q31, Q32, Q34, Q35-1, Q35-2 and Q39 in the original questionnaire -, which are mostly taken from environment module of the questionnaire. The six content questions used in this study include one question about information access to environment-related knowledge, two questions about environmental behaviors and three questions about environmental

concerns. Regarding two questions about environmental behaviors, one is defined as public-level environment behaviors which reflect the individuals' responsibility as citizens to voice their environmental concerns in public and take part in organized pro-environmental activities. It largely refers to the actions which do not bring any economic benefit to the individuals. Another one is defined as individual-level (private) environmental behaviors. It refers to the actions which are often aligned with direct economic benefits to the individuals. Regarding the three questions about environmental concerns, they are classified into concerns at the local level, concerns at the global level, and health risk concerns (local environmental issues-induced).

2.2. Characteristics of sample and Scale Construction

This study uses five demographics of questionnaire including gender, age, education level, income level and residence (Table 1). The sample was 48.2% male and 51.8% female. Age ranged from 20 to 69 years old, with a mean of 39 years old (20-29 (27.5%), 30-39 (26.5%), 40-49 (21.6%), 50-59 (15.6%), 60-69 (8.8%)). Regarding education level, three levels were classified as primary/lower secondary, upper secondary and higher. With a mean of 1.63 as the average educational level, 55.2% of the respondents completed primary/lower secondary education, 25.7% of the respondents completed upper secondary education, and only 18.8% of the respondents completed higher education. Regarding income level, three levels (lower, middle, upper) were defined based on each country's income level. The currency and income range therefore differed from country to country. On the whole, lower income group accounted for 45.3% of the respondents, middle income group accounted for 35.3% of the respondents, and upper income group accounted for 15.1% of the respondents. Regarding residence, 52.9% of the respondents lived in urban area, while 47.1% of the respondents lived in the rural area.

To measure the sophisticated concepts of environmental concerns and behaviors, six content questions used in this study contained multiple items (Table 2). To examine the reliability of the self-reported response to these items, we calculate the Cronbach's Alpha. In general, the results ranged from 0.610 to 0.929, indicating an acceptable consistency (Table 2). By transforming the categorical responses to these items into interval data, it is possible to use statistical techniques such as analysis of variance (ANOVA), correlation analysis, regression and path analysis to capture the relationships among environmental indices. Data transformation process for each environmental index is explained as follows (Table 1).

Table 1 Summary of environmental behavior indices and factor variables

| Variable name | Description | No. | Minimal value | Maximum value | Average value | Standard deviation |
|---------------|---|------|---------------|---------------|---------------|--------------------|
| InfoAccess | Access to information of health and /or environment (1=not available, 2=a little, 3=moderately, 4=mostly, 5=completely) | 9076 | 1.00 | 5.00 | 2.32 | 0.79 |
| PubBehaviors | Public pro-environmental behaviors (0=never participated any activities, 1=participated in one, 2=participated in two, 3=participated in three, 4=participated in four, 5=participated in five) | 9066 | 0.00 | 5.00 | 0.77 | 1.09 |
| PrivBehaviors | Private pro-environmental behaviors (1=never, 2=seldom, 3=sometimes, 4= often, 5=always) | 9087 | 1.00 | 5.00 | 2.87 | 0.81 |
| LocConcerns | Local environmental concerns (1=much less serious, 2=less serious, 3=unchanged, 4=more serious, 5=much more serious) | 9071 | 1.00 | 5.00 | 3.73 | 0.60 |
| HelConcerns | Health-related environmental concerns (1=much decreased, 2=decreased, 3=unchanged, 4=increased, 5= much increased) | 9070 | 1.00 | 5.00 | 3.70 | 0.59 |
| GlobConcerns | Global environmental concerns (1=not at all, 2=not so much, 3=to a certain extent, 4=very much) | 7987 | 1.00 | 4.00 | 3.18 | 0.63 |
| Gender | Gender (1=female, 0=male) | 9088 | 0 | 1 | 0.52 | 0.50 |
| Age | actual age of the respondent | 9088 | 20 | 69 | 39.41 | 12.89 |
| Education | Education level (1=primary/lower secondary, 2=upper secondary, 3=higher) | 9063 | 1.00 | 3.00 | 1.63 | 0.78 |
| Income | Household income level (1=lower, 2=middle, 3=upper) | 8698 | 1.00 | 3.00 | 1.68 | 0.73 |
| Residence | Residence (1=urban, 0=rural) | 9088 | 0.00 | 1.00 | 0.53 | 0.50 |

Table 2 Reliability analysis of environmental indices

| | No. of items in the scale | Alpha value |
|---|---------------------------|-------------|
| Access to information of health and /or environment | 4 | 0.636 |
| Public pro-environmental behaviors | 5 | 0.610 |
| Private pro-environmental behaviors | 5 | 0.616 |
| Local environmental concerns | 16 | 0.916 |
| Health-related environmental concerns | 16 | 0.929 |
| Global environmental concerns | 8 | 0.895 |

1. Information access (InfoAccess)
The InfoAccess scale was formed by combining the answers for asking the respondents to identify their accessibility to information sources (a) TV or radio, (b) newspaper or magazines, (c) internet, (d) community-based meetings. The 4 information sources were presented as questions which started with "how available to you is the information of health and/or environment through the following?" The mean of the scores for these 4 information sources was calculated to represent the general accessibility to health and/or environment information.
2. Public pro-environmental behaviors (PubBehaviors)
The construction of PubBehaviors scale was conducted by combining the answers for asking the respondents to identify whether they have done the following activities or not (a) to attend lectures or seminars about an environment issue, (b) to take part in volunteer activities for environment conservation, (c) to sign a petition about an environmental issue, (d) to give money to an environmental group, (e) to take part in a protest or demonstration about an environmental issue. To reflect to what extent each respondent participates in public pro-environmental activities, PubBehaviors was developed by aggregating scores for five items. The result is a 6-point scale variable, ranging from 0 to 5.
3. Private pro-environmental behaviors (PrivBehaviors)
The construction of PrivBehaviors scale was conducted by combining the answers for asking the respondents to indicate how often they performed each of five private pro-environmental activities (a) to reuse or recycle something rather than throw it away, (b) to try to reduce water consumption, (c) to try to reduce the amount of energy for cooking, cooling and heating, (d) to use public transportation instead of using personal car, (e) to buy organic or chemical-free vegetables. The five private pro-environmental activities were presented as questions which started with "how often have you done any of the following actions during the last 12 months?" The mean of the rating scores for these 5 private pro-environmental activities was calculated as a measurement of individual behaviors.
4. Local environmental concerns (LocConcerns)
The construction of LocConcerns scale was conducted by combining the answers for asking respondents to indicate the level of their concerns about 16 environmental issues at the local level. It was presented as questions which started with "compared to five years ago, do you think that the following issues have become more serious now?" The 16 environmental issues at the local level ranged from living environmental problems to ecological problems (a) air pollution, (b) water pollution, (c) soil pollution, (d) noise pollution, (e) climate change, (f) urban heat island, (g) pollution of beaches, river-side, lake-side etc., (h) deforestation, (i) genetically modified food issues, (j) water shortage, (k) using up our natural resources, (l) usage of chemicals and pesticides, (m) disposal of household waste and garbage, (n) disposal of industrial waste, (o) disposal of toxic or nuclear waste, (p) loss of biodiversity. The mean of the rating scores for these 16

environmental issues was calculated as a measurement of each respondent's general environmental concerns at the local level.

5. Health-related concerns (HelConcerns)

The HelConcerns scale was constructed by combining the answers for asking respondents to indicate the level of their concerns about 16 health risks induced by the corresponding environmental issues of LocConcerns. The mean of the rating scores for these 16 health risks was calculated as a measurement of each respondent's health-related concerns.

6. Global environmental concerns (GlobConcerns)

The GlobConcerns scale was constructed by combining the answers for asking respondents to indicate the level of their concerns about 8 environmental issues at the global level (a) deletion of ozone layer, (b) acid rain, (c) climate change, (d) deforestation, (e) loss of biodiversity, (f) marine pollution, (g) nuclear waste disposal, (h) usage of chemicals and pesticides. The mean of the rating scores for these eight environmental issues was calculated as a measurement of each respondent's global environmental concerns.

2.3. Hypotheses

Based on the previous studies' empirical findings, this study assumes:

1. There are significant differences between respondents with different demographic characteristics including age, gender, education, income and residence in terms of environmental behaviors and environmental concerns;
2. Information access affects people's environmental concerns, and consequently environmental behaviors;
3. Environmental concern is the determinant of people's environmental behavior.

It is worthy to mention that, though no consistent results in explaining social determinants of environmental concerns and environmental behaviors, regarding the age, gender, education, income, and residence, the previous studies generally suggest that younger people, female, higher education, high income and urban residents tend to express greater environmental concerns and support for pro-environmental activities.

3. Results and discussions

3.1. Environmental behaviors

Comparing the frequency of public-level pro-environmental behaviors to individual-level (private) behaviors, it is clear that majority of the respondents conducted individual-level behaviors to some extent in their daily life; however, there is only a minority of respondents involved in public-level pro-environmental activities in ASEAN countries (Table 3). 23.0% of the respondents have the experiences to attend lectures or seminars about an environmental issue, 20.5% of the respondents have taken

part in volunteer activities for environment conservation, and 24.4% of the respondents have given money to an environmental group. In contrast, a much smaller share of respondents has the experiences to sign a petition about an environmental issue (6.1%) and take part in a protest or demonstration about an environmental issue (3.4%). Overall, the respondents reported participating in organized environmental activities more frequently than voicing their environmental concerns in public.

Individual-level behaviors covered four domains of everyday behaviors including recycling/reusing, environmentally responsible consumption, transportation choices, and food consumption patterns. For all domains, over 70% of respondents reported performing environmental behaviors in their daily lives to some extent. Moreover, the respondents appear to engage in environmentally responsible consumption (saving water and energy) and transportation choices (public transportation use) more actively than recycling/reusing and food consumption patterns (purchase of organic and chemical-free vegetables). The respondents, therefore, are far more likely to engage in environmental activities that would bring a direct economic benefit to them. This implication is also supported by the comparison between public-level environmental behaviors and individual-level environmental behaviors. The respondents reported performing individual-level environmental activities which requires the least organized efforts much more often than organized public activities.

Table 3 Public-level and individual-level pro-environmental behaviors

Have you done the followings?

| | Yes | | No | | Total | |
|--|----------|------|----------|------|----------|-------|
| | Frequenc | % | Frequenc | % | Frequenc | % |
| a. to attend lectures or seminars about an environmental issue | 2076 | 23.0 | 6962.00 | 77.0 | 9038.00 | 100.0 |
| b. to take part in volunteer activities for environment conservation | 1855 | 20.5 | 7172.00 | 79.5 | 9027.00 | 100.0 |
| c. to sign a petition about an environmental issue | 549 | 6.1 | 8467.00 | 93.9 | 9016.00 | 100.0 |
| d. to give money to an environmental group | 2187 | 24.2 | 6843.00 | 75.8 | 9030.00 | 100.0 |
| e. to take part in a protest or demonstration about an environmental issue | 310 | 3.4 | 8717.00 | 96.6 | 9027.00 | 100.0 |

How often have you done any of the following actions during the last 12 months?

| | Never | | Seldom | | Sometimes | | Often | | Always | | Total | |
|---|----------|------|----------|------|-----------|------|----------|------|----------|------|----------|-------|
| | Frequenc | % | Frequenc | % | Frequenc | % | Frequenc | % | Frequenc | % | Frequenc | % |
| a. to reuse or recycle something rather than throw it away | 2068 | 22.8 | 1976.00 | 21.8 | 2762.00 | 30.4 | 1537 | 16.9 | 734 | 8.1 | 9077.00 | 100.0 |
| b. to try to reduce water consumption | 1443 | 15.9 | 1470.00 | 16.2 | 2419.00 | 26.6 | 2445 | 26.9 | 1305 | 14.4 | 9082.00 | 100.0 |
| c. to try to reduce the amount of energy for cooking, cooling and heating | 1399 | 15.5 | 1508.00 | 16.7 | 2483.00 | 27.5 | 2428 | 26.9 | 1224 | 13.5 | 9042.00 | 100.0 |
| d. to use public transportation instead of using personal car | 1642 | 18.2 | 2258.00 | 25.0 | 1901.00 | 21.0 | 1737 | 19.2 | 1498 | 16.6 | 9036.00 | 100.0 |
| e. to buy organic or chemical-free vegetables | 2281 | 25.6 | 1969.00 | 22.1 | 2057.00 | 23.1 | 1756 | 19.7 | 834 | 9.4 | 8897.00 | 100.0 |

3.2. ANOVA and Correlation Analysis

Table 4 summarized the results of analysis of variance (ANOVA). In general, demographics investigated repeatedly in previous studies appeared to be significant in explaining environmental variables in ASEAN countries as well. Table 4 depicts that there is a significant difference between female and male in terms of access to environment-related information, public pro-environmental behaviors, private pro-environmental behaviors and local environmental concerns. Public pro-environmental behavior is also significantly different between respondents with different education level and living in urban and rural areas, but not different between respondents of different age and income level. In terms of access to information, private pro-environmental behaviors, local environmental concerns, health-related environmental concerns and global environmental concerns, there are significant differences between respondents with different age, education, income and residence.

Table 4 Analysis of variance for gender, age, education level, income level, and residence (F-value)

| | Gender | Age | Education | Income level | Residence |
|---------------------------------------|----------|----------|-----------|--------------|-----------|
| Access to information | 15.431** | 1.855*** | 442.539** | 167.366** | 371.166** |
| Public pro-environmental behaviors | 19.569** | 1.332 | 29.398** | 0.202 | 33.174** |
| Private pro-environmental behaviors | 82.939** | 1.809*** | 137.836** | 48.564** | 544.063** |
| Local environmental concerns | 4.362* | 2.418*** | 62.121** | 35.899** | 8.918** |
| Health-related environmental concerns | 0.464 | 1.971*** | 59.833** | 12.165** | 10.034** |
| Global environmental concerns | 2.713 | 2.155*** | 16.717** | 5.269* | 81.088** |

Note: * indicates a 5% significant level. **Significant a 1% significant level.

Table 5 Correlation among different environmental variables

| | InfoAccess | PubBehaviors | PrivBehaviors | LocConcerns | HelConcerns | GlobConcerns |
|---------------------------------------|------------|--------------|---------------|-------------|-------------|--------------|
| Access to information | 1.000 | | | | | |
| Public pro-environmental behaviors | 0.116** | 1.000 | | | | |
| Private pro-environmental behaviors | 0.183** | 0.103** | 1.000 | | | |
| Local environmental concerns | -0.028** | 0.033** | 0.080** | 1.000 | | |
| Health-related environmental concerns | -0.016 | 0.043** | 0.065** | 0.768** | 1.000 | |
| Global environmental concerns | -0.090** | 0.113** | 0.051** | 0.385** | 0.388** | 1.000 |

Note: *Correlation is significant at 5% level. **Correlation is significant at 1% level.

To examine the relationships among different environmental variables, correlation analysis was applied. Table 5 shows that local environmental concerns are significantly correlated with health-related environmental concerns (0.768). Considering the question design which asked the respondents to indicate the level of their health risk concerns related to local environmental problems, it is natural that two variables have high correlation. Local environmental concerns and health concerns are also rather strongly correlated to global environment concerns, 0.385 and 0.388 respectively. People who reported having environmental concerns at the local level are more likely to perceive the importance of environmental problems at the global level. In addition, though weakly,

information access is correlated to public pro-environmental behaviors (0.116) and individual-level pro-environmental behaviors (0.183).

3.2. Path Analysis

To trace the cause/effect relationships among various environmental variables, path analysis was conducted using the software Amos 19. The model was finalized in a two-step process. In the first step, the model was adjusted to find acceptable estimation results. In the second step, all statistically insignificant paths were excluded and the model was re-estimated. Figure 1 depicts one of the acceptable model, wherein all the significant path coefficients at 5% level were indicated. The estimated significant path coefficients derived from the various steps of multiple regressions of environmental variables. The direct effect of one variable on another is presented as the weight given by the path coefficient, while the indirect effect can be calculated by multiplying the relevant estimated coefficients of direct paths. The value of direct effect lies into the range between -1 to +1. It indicates the relative change in the dependent variable induced by one unit of change in the independent variable.

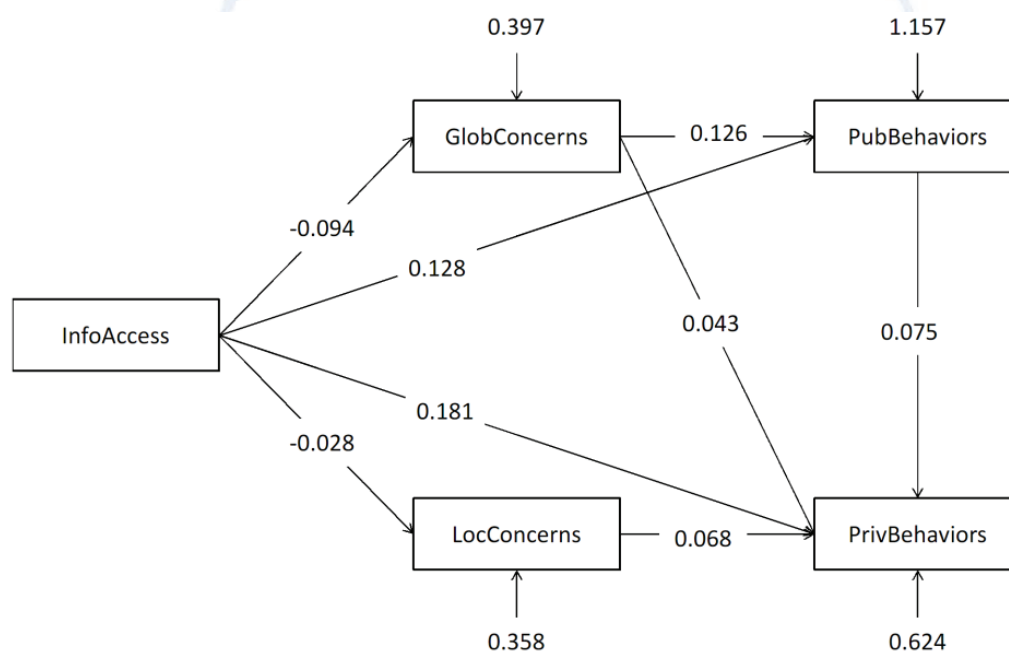


Figure 1 Path analysis: information access environmental concerns, and pro-environmental behaviors. Chi-square=1360.034, degree of freedom=2, p-value=0.000, RMSEA=0.273.

Figure 1 indicates that our initial hypothesis of causal effect from information access to environmental concerns and consequently to environmental behaviors was not confirmed in ASEAN countries. The chi-square is significant with 2 degrees of freedom. The root mean square error of approximation (RMSEA) is 0.273. The significant chi-square value and a RMSEA larger than 0.05 indicate that our model does not fit the data very well. Although the overall goodness of fit of our model was low, the predicted paths still provided indicative information about cause/effect relationships among

environmental variables. The predicted paths among information access, environmental concerns and environmental behaviors were significant, but the effects were negligible for both public-level and individual-level. In addition, the indirect effects of information access on environmental behaviors through environmental concerns were found to be negative (-0.094×0.126 and -0.028×0.068 , respectively), while the direct effects of information access on environmental behaviors were found to be positive (0.128 and 0.181, respectively). The finding suggests that access to environment-related information might effectively promote people's involvement in pro-environmental activities (at both public- and individual-level), but not necessarily improve people's awareness of environmental issues in ASEAN countries. In the meantime, compared to public environmental behaviors, we found more diversified significant paths from various environmental variables to private environmental behaviors. In particular, there is significant path from public environmental behaviors to private environmental behaviors. These findings suggest that, first, improved information access and environmental awareness are more likely to lead to the active participation in environmental activities at the individual level, but less in environmental activities at the public level. Second, the improved environmental knowledge and awareness through organized public environmental activities might contribute to the more active involvement of in individual environmental behaviors.

4. Conclusion

This study investigated the factors affecting environmental behaviors in ASEAN member countries. The data from questionnaire survey "ASEAN Barometer 2009" was used in empirical analyses. We first examined the relationships between various environmental variables with demographics including gender, age, education, income and residence. We then examined the relationships among environmental variables. The empirical results derived from the data showed that, first, demographic characteristics affect the attitude and behavior patterns of respondents towards environment in ASEAN countries. Among five demographics examined in this study, gender appeared relatively weak in explaining the differences of environmental variables. In addition, public environmental behaviors appeared to be less affected by demographic characteristics.

Secondly, through differentiating the environmental behaviors between public-level one and individual-level one, we found that public environmental behaviors, which largely involved organized activities, were overall less frequent than private environmental behaviors. Individuals in ASEAN countries are more likely to participate in the pro-environmental activities that have direct self-interest for the individuals involved. This finding implies the importance of introducing economic incentives when ASEAN countries' governments implement environmental policies. Appropriate economic incentives might greatly change people's willingness to be involved in environmental protection activities, especially organized public activities in ASEAN countries.

Thirdly, the results of path analysis presented the causal relationship from information access to environmental behaviors, and the causal relationship from public environmental behaviors to private environmental behaviors. This finding implies the

importance of environmental education in ASEAN countries. Although the indirect impacts of information access on environmental behaviors through environmental concerns were not clearly presented in our analysis, the results suggest the possibility that better information access through various education campaigns may effectively influence people's individual (household) environmental activities. Regarding environmental concerns at different levels (global and local), they did not appear to make much difference in influencing environmental behaviors. Instead, the people who have high awareness of local environmental concerns appear to have high awareness of global environmental concerns as well in ASEAN countries, and vice versa.

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Voluntary Contribution of Public Goods and Income Equality

Tetsuro Okazaki

Chiba University of Commerce, Japan

0417

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1. Introduction

If we consider the models of voluntary contributions of public goods, some neutrality theorem holds. Bergstrom, Blume and Varian (1986) precisely proved the neutrality theorem. In this neutrality theorem, small redistributions of incomes between contributors do not affect each individual's consumption level at the equilibrium outcome. So such redistributions do not affect each individual's utility or social welfare. So redistributions of income are meaningless from the viewpoint of social welfare.

In addition, Bergstrom, Blume and Varian (1986) proved that large redistributions of incomes change the set of the contributors and each individual's consumption level. Especially, the redistributions that increase the aggregate income of the current contributors necessarily increase the level of the public good at the equilibrium outcome.

Itaya, de Meza and Myles (1997) considered the case where only one individual contributes and the other individuals are indifferent between contributing and not contributing. Then, Itaya, de Meza and Myles (1997) analyzed the effect of redistributions that increase the income of the contributor and proved that such redistributions raise social welfare in the case of two individuals.

In this paper, we consider redistributions that are similar to those analyzed by Itaya, de Meza and Myles (1997). We show that such redistributions do not make Pareto improvement in the case of two individuals. That is, such redistributions necessarily decrease non-contributor's utility. But, in the case of more than three individuals, there is a redistribution that makes Pareto improvement. We derive the necessary and sufficient condition for Pareto improvement.

As mentioned before, the redistributions that increase the contributors' income increase the level of the public good. So, usually, many have an intuition that efficiency needs inequality. In fact, the title of Itaya, de Meza and Myles (1997) is 'in praise of inequality'. Contrary to this intuition, this paper shows that we can construct the economy where efficiency consists with equality. So inequality is not always praised.

In addition, we consider the economies where each individual's utility function is Cobb-Douglas function, assuming that there are individuals who evaluate the public good and individuals who evaluate the private good. We calculate the income distributions that have no room for further Pareto improvement and analyze who should be a contributor. In many cases, the individual with the highest evaluation of the public good should be a contributor, but, there may be the cases where the individual with the lowest evaluation of the public good should be a contributor. Moreover, we show that there is the case where transferring to the least advantaged individual improves the most advantaged individual.

2. The Model

Consider an economy where there are one private good, one public good and n individuals. Let $N = \{1, 2, \dots, n\}$. Each Individual $i \in N$ has his or her own income I^i .

Each Individual i consumes an amount of the private good x^i and contributes an amount g^i to the public good. An amount of the public good G is defined as $G = \sum_i g^i$. Let $G_{-i} = \sum_{j \neq i} g^j$. So we have $G = G_{-i} + g^i$. Each Individual i has a utility function: $u^i(x^i, G)$. We assume that the utility functions are continuous, increasing and quasi-concave. Moreover, we assume that the public good and the private good are normal good.

The units of the public good and of the private good are chosen so that prices are normalized to 1. Then, the Individual i 's budget constraint is $x^i + g^i \leq I^i$. Let $I = (I^1, \dots, I^n)$ and $E = \sum_i I^i$.

Each individual decides his or her consumption of the private good and his or her contribution to the public good. We consider the case where each individual simultaneously makes such a decision. Moreover, we assume that the structure of the economy is the common knowledge. So, we analyze the property of Nash equilibria of this game.

3. Nash equilibria and income distribution

Individual i 's maximization problem is as follows:

$$\begin{aligned} & \max u^i(x^i, G_{-i} + g^i) \\ & \text{subject to } x^i + g^i \leq I^i, x^i \geq 0 \text{ and } g^i \geq 0. \end{aligned}$$

Denote by $(x^i(I^i, G_{-i}), g^i(I^i, G_{-i}))$ the solution of this problem. We can rewrite this maximization problem as follows:

$$\begin{aligned} & \max u^i(x^i, G) \\ & \text{subject to } x^i + G \leq I^i + G_{-i}, x^i \geq 0 \text{ and } G \geq G_{-i}. \end{aligned}$$

We consider the following problem, denoting $Y^i = I^i + G_{-i}$:

$$\begin{aligned} & \max u^i(x^i, G) \\ & \text{subject to } x^i + G \leq Y^i \text{ and } x^i \geq 0 \end{aligned}$$

and denote the solution of this problem by $x^i = \xi^i(Y^i)$ and $G = \Gamma^i(Y^i)$. Since the public good and the private good are normal, $d\xi^i/dY^i > 0$ and $d\Gamma^i/dY^i > 0$ hold. It is easy to show that $x^i(I^i, G_{-i}) = \min\{I^i, \xi^i(I^i + G_{-i})\}$ and $g^i(I^i, G_{-i}) = \max\{0, \Gamma^i(I^i + G_{-i}) - G_{-i}\}$. For given $I = (I^1, \dots, I^n)$, a Nash equilibrium $((x^{*1}(I), g^{*1}(I)), \dots, (x^{*n}(I), g^{*n}(I)))$ satisfies $x^{*i}(I) = x^i(I^i, \sum_{j \neq i} g^{*j})$ and $g^{*i}(I) = g^i(I^i, \sum_{j \neq i} g^{*j})$.

For given $I = (I^1, \dots, I^n)$, we denote by $C(I)$ the set of the players who contribute at the equilibrium. With respect to the relation between income redistribution and Nash equilibria, Bergstrom et al. (1986) proved the following facts.

Proposition 1. Consider $I' = (I'^1, \dots, I'^n)$ such that $\sum_i I'^i = E$, $I'^i > I^i - g^{*i}(I)$ for any $i \in C(I)$, and $I'^i = I^i$ for any $i \in N \setminus C(I)$. Then we have $x^{*i}(I') = x^{*i}(I)$ for any $i \in N$ and $\sum_i g^{*i}(I') = \sum_i g^{*i}(I)$.

Proof: See Bergstrom et al. (1986).

From Proposition 1, the income redistribution does not affect each individual's utility. So, the redistributive policies by the government are meaningless.

Itaya et al. (1997) derived the necessity of the redistributive policies by the government in the same model. Itaya et al. (1997) analyzed the effect of income redistributions from income distributions under which one individual contributes and the other individual is indifferent between contributing and not contributing in the case where $n = 2$.

In this paper, we will analyze the same income redistributions. Suppose that only Individual i contributes and the other individuals are indifferent between contributing and not contributing under some income distribution \hat{I} . We can easily show that \hat{I} is on the boundary of the set $Z = \{I | g^{*i}(I) > 0 \text{ for any } i\}$. For given (t^1, \dots, t^2) with $\sum_{j \neq i} t^j = 1$, denote by $(T^i; t^1, \dots, t^n)$ an income redistribution from \hat{I} . This means that $I^i = \hat{I}^i + T^i$ and $I^j = \hat{I}^j - t^j T^i$ for any $j \neq i$ after this redistribution.

Because only Individual i contributes in this case, $G = \Gamma^i(\hat{I}^i + T^i)$ and $x^j = \hat{I}^j - t^j T^i$ hold at the equilibrium and Individual j 's utility is $u^j(\hat{I}^j - t^j T^i, \Gamma^i(\hat{I}^i + T^i))$. Since \hat{I} is on the boundary of the set Z , the marginal rate of substitution is equal to 1 ($du^j/dG = du^j/dx^j$) and $du^j/dT^i = (d\Gamma^i/dY^i - t^j)(du^j/dG)$ holds. Next is our main result.

Proposition 2. If $d\Gamma^i/dY^i > 1/(n-1)$ holds, then an income redistribution $(dT^i; t^1, \dots, t^n)$ with $(t^1, \dots, t^2) = (1/n-1, \dots, 1/n-1)$ makes Pareto improvement. If an income redistribution $(dT^i; t^1, \dots, t^n)$ makes Pareto improvement, then $d\Gamma^i/dY^i > 1/(n-1)$ holds.

Proof: If $d\Gamma^i/dY^i > 1/(n-1)$ holds, then we have $du^j/dT^i = (d\Gamma^i/dY^i - 1/n-1)(du^j/dG) > 0$ for any j . So, the income redistribution $(dT^i; 1/n-1, \dots, 1/n-1)$ makes Pareto improvement. Suppose an income redistribution $(dT^i; t^1, \dots, t^n)$ makes Pareto improvement. If $d\Gamma^i/dY^i \leq 1/(n-1)$ holds, then $du^j/dT^i = (d\Gamma^i/dY^i - t^j)(du^j/dG) < 0$ holds for some j or $du^j/dT^i = 0$ holds for any j . This is a contradiction. (Q.E.D.)

Iritani and Yamamoto (2005) showed that $d\Gamma^i/dY^i > 1/(n-1)$ is the sufficient condition for the Pareto Improvement. Our proposition proves that this is the necessary and sufficient condition.

Suppose that $n = 2$. Then the necessary and sufficient condition for Pareto improvement is $d\Gamma^i/dY^i > 1$. If the public good and the private good are normal, then we have $d\Gamma^i/dY^i < 1$. So Pareto improvement is not impossible in the case of two individuals.

From this, we can justify the viewpoint of Buchholz and Konrad (1995), Ihuri(1996), Cornes and Hartley (2007), etc. They, focusing on difference of productivity between the individuals, analyzed the relation between productivity and transfers of income in the case of two individuals. As shown by Proposition 1, if there is no productivity difference like our model, it is impossible to make Pareto improvement through income redistributions. So they have to focus on the difference of productivity.

Itaya et al. (1997) proved that an income redistribution $(dT^i; t^1, \dots, t^n)$ improve the social welfare in the case where $n = 2$. This is true. But, this improvement of social welfare does not imply Pareto improvement because Itaya et al. (1997) considered the case of two individuals.

If there are more than three individuals, circumstances change. In Proposition 1, we derive the necessary and sufficient condition for Pareto improvement. This condition can hold in the case of more than three individuals. So, without difference of productive, there may be some income redistribution that makes Pareto improvement. Under this income redistribution, a contributor receives more income and the others lose income. Based on this result, Itaya et al. (1997) argued that inequality of the income distribution is praised. In the following example, we show that Pareto improvement does not necessarily imply inequality.

Example 1. Let $n = 3$. Each Individual i 's utility function is $u^i = (x^i)^{a^i} G^{b^i}$ where $a^i > 0$ and $b^i > 0$. Let $r^i = a^i/b^i$, $r^1 < r^2 < r^3$, $r^1 < 1$, $r^2 > r^1 + 1$, $r^3 > r^1 + 1$, $I^2 = (a^2/b^2)(b^1/(a^1 + b^1))I^1$ and $I^3 = (a^3/b^3)(b^1/(a^1 + b^1))I^1$. In this example, from $r^2 > r^1 + 1$ and $r^3 > r^1 + 1$, we have $I^2 > I^1$ and $I^3 > I^1$. So Individual 1 is poorest. Under the income distribution (I^1, I^2, I^3) , only Individual 1 contributes and the other individuals are indifferent between contributing and not contributing (From $I^j = (a^j/b^j)(b^1/(a^1 + b^1))I^1$ ($j = 2, 3$), individual j 's marginal rate of substitution is equal to 1 at (I^j, G) where G is determined by individual 1 ($G = (b^1/(a^1 + b^1))I^1$).). Moreover, $d\Gamma^i/dY^i = b^1/(a^1 + b^1) > 1/2$ holds. So, the income redistribution from Individuals 2 and 3 to Individual 1 makes Pareto improvement. This redistribution equalizes incomes between individuals. Therefore, Pareto improvement consists with equality in this example.

4. The economies with Cobb-Douglas utility functions

In this section, in order to analyze the effect of income redistribution more precisely, we assume that each Individual i 's utility function is $u^i = (x^i)^{a^i} G^{b^i}$ where $a^i > 0$ and $b^i > 0$. Let $r^i = a^i/b^i$ and $R = \sum_i r^i$. We assume that $r^1 \leq \dots \leq r^n$. For given G_{-i} , $\xi^i(I^i + G_{-i}) = (a^i/(a^i + b^i))(I^i + G_{-i})$ and $\Gamma^i(I^i + G_{-i}) = (b^i/(a^i + b^i))(I^i + G_{-i})$ hold. So, Individual i 's decision is $x^i(I^i, G_{-i}) = \min\{I^i, (a^i/(a^i + b^i))(I^i + G_{-i})\}$ and $g^i(I^i, G_{-i}) = \max\{0, (b^i/(a^i + b^i))I^i - (a^i/(a^i + b^i))G_{-i}\}$.

The income redistribution to Individual i from the distribution on the boundary Z makes Pareto improvement, only if $d\Gamma^i/dY^i > 1/n - 1$ holds. For such i , we have $r^i < n - 2$. Let $L = \{i | r^i < n - 2\}$. This is a set of the candidates of a contributor.

Consider the income distribution $I = (I^1, \dots, I^n)$ where only Individual i contributes and the income redistribution $(dT^i; t^1, \dots, t^n)$ from I . Since only Individual i is a contributor, Individual j 's utility ($j \neq i$) is $u^j = (I^j - t^j T^i)^{a^j} \{(b^i / (a^i + b^i))(I^i + T^i)\}^{b^j}$. We have $du^j/dT^i = A \cdot B \cdot (C - D)$ with $A = (I^j - t^j T^i)^{a^j - 1}$, $B = \{(b^i / (a^i + b^i))(I^i + T^i)\}^{b^j - 1}$, $C = (I^j - t^j T^i)(b^j b^i / (a^i + b^i))$ and $D = a^j t^j (b^i / (a^i + b^i))(I^i + T^i)$. Set $T^i = 0$. Then, if $(I^j b^j b^i / (a^i + b^i)) - (I^i a^j t^j b^i / (a^i + b^i)) > 0$ holds for any j , there is an income redistribution from $I = (I^1, \dots, I^n)$ making Pareto improvement. In other words, if for any j , $(I^j b^j b^i / (a^i + b^i)) - (I^i a^j t^j b^i / (a^i + b^i)) = 0$ holds (and $I^j = t^j r^j I^i$ holds), there is no income redistribution $(dT^i; t^1, \dots, t^n)$ from $I = (I^1, \dots, I^n)$ making Pareto improvement. (This condition is one of such conditions. For example, if $(I^j b^j b^i / (a^i + b^i)) - (I^i a^j t^j b^i / (a^i + b^i)) < 0$ holds for some j , there is no income redistribution making Pareto improvement.)

For each $i \in L$, we consider the income distribution $I(i) = (I^1(i), \dots, I^n(i))$ satisfying $I^j(i) = t^j(i) r^j I^i(i)$ for any j . In order to treat each $I(i)$ ($i \in L$) symmetrically, we assume that $t^j(i) = 1/n - 1$ for any i and j . That is, we consider the income distributions $I(i) = (I^1(i), \dots, I^n(i))$ ($i \in L$) such that $I^j(i) = r^j I^i(i) / (n - 1)$ for any i and j . (Note that we do not necessarily attain this income distribution through the income redistribution with $t^j(i) = 1/n - 1$. We should consider this income distribution just as a benchmark.)

In this case, we have $I^i(i) = (n - 1)E / (R - r^i + n - 1)$ and $I^j(i) = r^j E / (R - r^i + n - 1)$ for each $i \in L$. Denote by $G(i)$ and $x^j(i)$ the amount of the public good and Individual j 's consumption of the private good at the equilibrium under the income distribution $I(i)$. Since only Individual i contributes under $I(i)$, we have $G(i) = (n - 1)E / \{(r^i + 1)(R - r^i + n - 1)\}$, $x^i(i) = r^i (n - 1)E / \{(r^i + 1)(R - r^i + n - 1)\}$ and $x^j(i) = r^j E / (R - r^i + n - 1)$.

Let $u^j(i)$ be Individual j 's utility at the equilibrium under the income distribution $I(i)$. That is, $u^j(i) = (x^j(i))^{a^j} G(i)^{b^j}$ and $u^i(i) = (x^i(i))^i G(i)^{b^i}$.

If we want to analyze the social welfare, we have to compare each individual's utility because each individual may have a different preference. But, there is no criterion for the comparison which is unanimously accepted. In follows, we analyze each individual's consumption levels and the social welfare at the equilibrium without comparison of utilities.

Lemma 1. For any $i \in L \setminus \{1\}$, we have $x^1(i) < x^k(i)$ for any $k \neq 1$.

Proof: We have $r^1 E / (R - r^1 + n - 1) < r^k E / (R - r^1 + n - 1)$. (Q.E.D)

From this Lemma, if the contributor is other than Individual 1, Individual 1's consumption level of the private good is minimal in this society. The consumption level of the public good is common for every individual. So, we can say that Individual 1 is least advantaged if we focus on the consumption level.

Lemma 2. For any $i \in L$ and $j \in L$ such that $i < j$, we have $G(i) > G(j)$ and $x^k(i) < x^k(j)$ for any $k \neq i$ and $k \neq j$.

Proof: We have, letting R and n be constant, $d\{(r^i + 1)(R - r^i + n - 1)\}/dr = R + n - 2 - 2r^i$. From $r^i < n - 2$ for any $i \in L$, we have $d\{(r^i + 1)(R - r^i + n - 1)\}/dr > 0$. So if $r^i < r^j$, we have $G(i) > G(j)$. If $r^i < r^j$, we have $R - r^i + n - 1 > R - r^j + n - 1$ and $x^k(i) < x^k(j)$. (Q.E.D.)

From this Lemma, Individual k consumes more public good and less private good when the contributor's index is small. So we can say there is a trade-off in Individual k 's utility as for the identity of contributors and that it is not easy question who should be a contributor.

With respect to each individual's utility, we get the following fact.

Fact 1. For any $i \in L$ and $j \in L$ with $i < j$, we have $u^i(i) > u^i(j)$.

Proof: We have $G(i) > G(j)$ from Lemma 2. Since $r^j < n - 2$, $(r^j + 1)/(n - 1) < 1$ and $((r^j + 1)/(n - 1))^{a^i} < 1$ hold. Noting that $u^i(i) = (r^i)^{a^i} (G(i))^{a^i+b^i}$ and $u^i(j) = (r^i)^{a^i} ((r^j + 1)/(n - 1))^{a^i} (G(j))^{a^i+b^i}$, we get $u^i(i) > u^i(j)$. (Q.E.D)

Corollary 1. For any $i \in L \setminus \{1\}$, we have $u^1(1) > u^1(i)$.

When Individual 1 is a contributor, the amount of the public good is largest. From this, the redistribution to Individual 1 can be justified. In addition, as mentioned before, when the contributor is not Individual 1, Individual 1 is least advantaged if we focus on the consumption level. When Individual 1 is a contributor, Individual 1's utility is highest. Advocates of Rawls' Difference Principle are arguing that we should change our institutions to improve the life prospects of the least advantaged in society (Rawls (1971)). From this viewpoint, the redistribution to Individual 1 may be justified.

From Lemma 1, if the contributor is other than Individual 1, Individual 1's consumption level of the private good is minimal. But, if Individual 1 is the contributor, Individual

1's consumption level is not always minimal. See the following example.

Example 2. Let $n = 3$. Suppose that $r^1 < r^2 < 2r^1/(r^1 + 1)$. Then, $x^1(1) > x^2(1)$ holds. So if Individual 1 is the contributor, Individual 2 is least advantaged. When the contributor is not Individual 1, Individual 1 is least advantaged. The utility of the least advantaged individual in each $I(i)$, is $u^1(2)$, $u^1(3)$ or $u^2(1)$. Based on comparison among these utilities, there may be the case where we should not choose $I(1)$ and the contributor should be other than Individual 1. Moreover from Lemma 2, $x^1(2) < x^1(3)$ holds. So $u^1(2) < u^1(3)$ can hold. Then, if we should improve the least advantaged individual, Individual 3 should be the contributor in some case. That is, in this case, Rawls' Difference Principle justifies the redistribution to the most advantaged individual.

In the above analysis, we focus on the least advantaged individual. In the most cases, it is justified to transfer to the least advantaged individual. In the example 2, however, transferring to the other individual is more favorable from the same viewpoint.

Next, we focus on another individual's welfare, especially the most advantaged individual's welfare. This is exact opposite of the criterion of Rawls.

Example 3. Let $n = 3$. Suppose that $r = r^1 < r^2 = r^3 = 1$ and $a^3 = b^3 = 1$. Then $u^3(3) = (E/(3+r))^2$, $u^3(2) = (E/(3+r))^2$ and $u^3(1) = (E/4)^2(2/(r+1))$. As r goes to zero, we have $u^3(1) > u^3(2) = u^3(3)$.

From this example, there is the case where transferring to the least advantaged individual improves the most advantaged individual.

5. Concluding Remarks

In this paper, we derive the necessary and sufficient condition for Pareto improvement in the models of voluntary contribution of the public good. Contrary to existing intuition among most scholars, this condition has no direct relation to income inequality. In fact, we present the example where income equality consists with efficiency. (Dasgupta (2009) showed that income equality consists with efficiency assuming that the public good is impure. In this paper, such impurity is not assumed.)

Moreover, assuming that each individual's utility function is Cobb-Douglas function, we derive the income distributions that have no room for further Pareto improvement. Then, we analyze each individual's consumption levels and utility at the equilibrium from the viewpoint that is similar to Rawls' Difference Principle. Some of our results are as follows: In most cases, it is justified to transfer to the least advantaged individual; in some cases, transferring to the other individual is more desirable from the same viewpoint; transferring to the least advantaged individual may improve the most advantaged individual.

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Engaging While Empowering Community: A Case study of Government's Internet Access Dissemination Program to the Rural Indonesian Community

Nurul Sari

Universitas Airlangga, Indonesia

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Abstract

This research examines the implementation of Indonesian government's internet access dissemination program to Indonesian rural communities particularly to the district representativeness. The growing gap of I-poor and I-rich in most countries has brought about higher gap in people's literacy, opportunity, and economic achievement (Kagan, 2000). This has challenged Indonesia, which experiencing high disparity in telecommunication infrastructure establishment between the west and east areas, particularly rural area. Thus, the internet dissemination program aims to empower the rural community by creating information and social-economic opportunities. Given this, the paper argues that the program demands community engagement (Rogers, 1995) as community participation rights (Friedland, 2001) in socialising, exercising and benefiting internet facilities. Based on a mini-ethnography, interviews, and Forum Group Discussions (FGD), data were gathered to examine the program implementation in a district which located in the edge of Indonesian capital. This paper reports mostly on the interviews and FGD with three respondent groups: the government representatives, the internet company representatives, and the local opinion leader including communities. It revealed that the program performed exclusive engagement and empowerment—particularly students. A top-down and asymmetric communication and managerial approach was clearly an obstacle in empowering rural Indonesian community. The findings provide insights for government seeking to implement authentic sustainable community empowerment program in a developing country context.

Keywords: Community engagement, community empowerment, participation, government program, Indonesia

Introduction

This research examines the implementation of Indonesian government's internet access dissemination program that distributed to district representativeness. The growing gap of I-poor and I-rich has brought about higher disparity in people's literacy, opportunity, and economic achievement (Kagan, 2000). The growing gap of I-poor and I-rich in most countries has brought about higher gap in people's literacy, opportunity, and economic achievement (Kagan, 2000). This has challenged Indonesia, which experiencing high disparity in telecommunication infrastructure establishment between the west and east areas, particularly rural area. Thus, the program aims to empower rural community by providing internet facilities and access in rural area. Thus, the internet dissemination program aims to empower the rural community by creating information and social-economic opportunities.

Given this, community participation is a significant objective to aim the empowerment. Thus, the paper argues that the program demands community engagement (Rogers, 1995) through the proper public communication campaign (Rice & Atkin, 2001) as the community participation rights (Friedland, 2001) in socialising, exercising, and benefiting the internet facilities. However, engaging while empowering have challenged most developing countries. Particularly in government agenda, a program goal is typically government-based, yet community-based (Goddard, 2005).

The following study would first present the case study in Indonesian context. Secondly, the study identifies community engagement and power sharing in a government program. Thirdly, the relevant of community-based program would be explained. Next, the demand of public communication campaign would be addressed as major aspects in building community engagement. The viewpoint of community engagement and the research implications conclude the study.

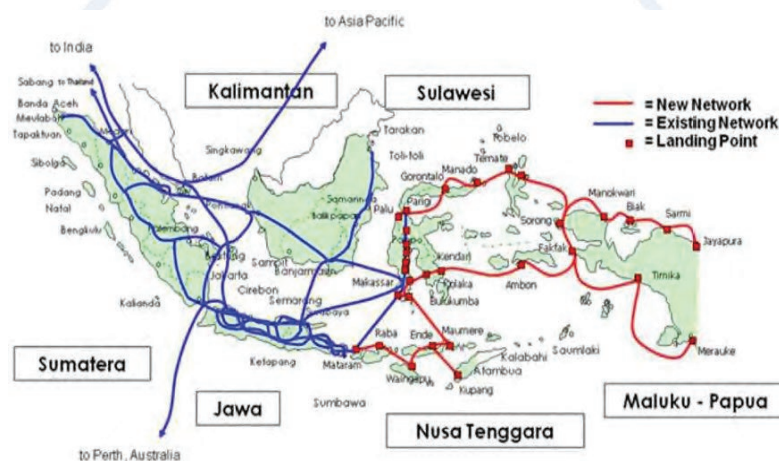
Methods

The study uses mini ethnography, semi-structured interviews, and Focus Group Discussion (FGD) to develop a deep understanding of community engagement in internet distribution program. A mini-ethnography observation (Wolcott, 1990) applied to increase the researcher's awareness of a social phenomenon (Mason, 2002; Rubin & Rubin, 1992), which focuses on particular setting such as their living area, economic status, and social activities. The case study approach that covers contextual conditions, not just the phenomenon of the study, is applied to facilitate a deep and holistic analysis (Yin, 1994). The research was conducted in a district which located next to Indonesian capital city. Respondents were determined by purposive sampling (Maxwell, 1996). The interviews and FGD were held with three respondent groups: the government representatives (GR), the internet company representatives (IC), and the local opinion leader (OL) including communities (LC). The secondary literatures were collected from the relevant agencies and academic database in community engagement and empowerment.

Internet access and facilities distribution program

Indonesia's internet distribution is a continuation from the previous communication access program, telephone access distribution. The program is the commitment of Indonesian government into Universal Service Obligation (USO) of Information and Communication Technology. The spirit of empowerment is performed in the government commitment in digital divide by minimizing information gap in Indonesia (Berita kominfo, 2013a; Berita kominfo, 2013b).

The telecommunication infrastructure mapping in Indonesia has been challenged by the disparity between the west and east areas of Indonesia (picture 1). The backbone infrastructure is available in the west area, that has concerned the government who recently focuses on improving USO to be Broadband Service Obligation (BSO) in all Indonesia areas. To achieve Indonesia connected, the program has been implemented into 3 tactics: Desa Pinter (Indonesian abbreviation for 'Rural with internet'), PLIK (Centre of Internet Service in District), and MPLIK (Mobile Center of Internet Service in District).



Picture 1. The map of Indonesia's backbone infrastructure

The internet distribution tactics are strategic tools to minimise digital divide and enhance Indonesian people's social and economic achievement. Thus, the program is ideally benefited community inclusively, to gain not only information, but also better opportunities to enhance their life quality. Regarding this complexity, Indonesian government applied partnerships with telecommunication providers. However, community has not been involved effectively, because of the missing socialization and engagement efforts.

Government program: (dis)engage the community

Government does vital in improving community life quality through the availability of facilities and services in many sectors, such as social, economic, education, and

health. However, information and benefit distribution have challenged most government program (Park & Wang, 2010; Kvasny, 2006). Cavaye (2000) explains that the social and economic changes lead to dynamic situations which requires the community to adjust actively, including the rural community. Thus, Cavaye (2000) underlines the pertinent of community capacity building, including the ability to anticipate change by thinking strategically and make informed decision. Relevant to community adjustment ability, intelligent-capability development is necessary while providing infrastructure. Green & Hayes (2012) note that community empowerment concerns not only to build physical, but also social and cultural capital. Thus, rural community should be knowledgeable to achieve community empowerment as a pivotal agenda in government program.

In the past two decades, there is a changing paradigm in government program, from a managerial approach to community engagement (Goddard, 2005; Head, 2007). Managerial approach highlights hierarchical and top-down planning, implementation, and communication; while community engagement facilitates community participation in planning, implementation, and communication. Brown, Kerry and Keast, Robyn (2003) identify community engagement as a new way of working together between government and citizen which requires specialised mixing, matching and managing of networked arrangement.

Many scholars define Community Engagement (CE) as community participation (Nelson & Petiit, 2004) which demands the building of institutional bridge between government and citizen (Head, 2007). Rogers (1995) highlights the term of participation as public consultation in a dialogue that lead to real participation in defining community's problems and solutions. This form of involving includes a competence-transfer which contributes to the program sustainability (Nelson & Petiit, 2004; Rogers, 1995). Given this, CE requires community relations efforts to boost their participation through the input, throughput, and output process to achieve an outcome.

Community engagement as a power sharing

Specifically, the essential of CE lies in the urgency of social problems, which have challenged government to achieve citizen empowerment. There are quests in government capability, which typically adopts top-down approach to resolve social problems (Goddard, 2005; Head, 2007). Thus, CE has encouraged the role of community as a subject, not only as an object, particularly in government program. In a democratic nation, community participation is a right that community deserves to be involved in the government program's planning and implementation. Head (2007) underlines the relevance between democracy notion and CE as a power sharing process, rather than an interest-groups management, which benefits government. Power sharing lies in acknowledgment of community existences, as Friedland (2001) argues that community does exist and right equal participation.

Thus, in a relation with CE definition, community deserves opportunities to be the part of an integrative government-community program. Community is not only legitimate the government agenda, but allowed to form a public agenda (Kilpatrick, 2009) from their problem identifications, including the solutions. This may build their responsibility as a part of the program. Kilpatrick (2009) finds in his research of rural community empowerment that understanding community facilitates CE through working together to achieve outcomes. Thus, a community-based program has been an agenda in creating a government program. This is not to say that community controls the government, rather to portray that government program should provide a space for community to work together with the government. Therefore, CE requires community-based program to formulate a proper CE through communication strategy in government program implementation.

Community-Based-Program (CBP)

Before discussing CBP, it is necessary to understand the term of community which may or may not be place-based (Green and Hayes, 2012). Community can be defined geographically who share norms and values, but also can be a group share or act on a common interest, such as religious or political issues. Additionally, Friedland (2001) consider community as a democracy participants who right to be involved in governance program. Relevant to the purpose, this paper focus on the community in a geographic area which share social norms and values, who also deserve to be democracy participants.

CBP has been an agenda in government program which requires community acknowledgement. To build an empower community, understanding community is essential to emerge a real community participation. The expansion of CBP has been an important trend in public campaign particularly health and social issues (Park & Wang, 2010). CBP seeks sustainable behavior (McKenzie, 2011) that most government program aims to. CBP focuses on the social and psychological aspects that effectively support behavioral change. McKenzie (2011) notes that CBP is an advanced approach from Information-based program which aims to create awareness. However, awareness remains in cognitive level when it fails to be penetrated in affective and conative level. Thus, social and psychological aspects are necessary in conducting an empowerment program which requires community participation.

Furthermore, the relevance between CBP and community participation is explained by Park & Wang (2010) who find that CBP works in public participation in poor alleviation in China that designated investment in poor villages based on participatory village planning. Additionally, Park & Wang (2010) state that in a community empowerment program, government roles matter in the distribution of program benefits. Clearly, this shows the pertinent of providing program benefits by facilitating community participation. Furthermore, Green and Haines (2012) emphasizes public participation and community control as pivotal factors in community empowerment program which focuses on poor and minority group. Thus

the program requires to apply CBP to facilitate social opportunity which facilitate them to improve their quality of life.

Community Engagement, Community-Based Program, and Public Participatory Communication

Engaging community into government program has been discussed by Brown, Kerry and Keast, Robyn (2003) that distinguish '3c' in a government program implementation: cooperation, coordination and collaboration. They identify a different establishment level in engaging community, from cooperation, coordination, and collaboration. Cooperation is characterised by a short term and low level of intensity to achieve the goal. Coordination refers to more formally relationship that requires information sharing as well as joint planning, decision-making, and action between organisations (Mulford and Rogers 1982; Daka-Mulwanda 1995; Lawson 2002, in Brown, Kerry and Keast, Robyn, 2003). The second C, coordination, requires higher level of commitment. The relationship is not dependent on the good will of the different actors, but has some of the force of an objective, a mandate, leading to a more enduring system of relationships between different components of a larger system. Thus, coordination is a kind of formal relationship with a typical top-down communication flow. Among the 3C, Collaboration is the most stable and long-term type of engagement. It demands a well-defined communication flow to involve the relevant actors by facilitating their participation rights.

Relevant with above discussion, the role of communication has been crucial in the program planning and implementation as a tool to boost community participation. Lawson (2002) explains that collaboration demands communication to achieve an integration into goal achievement. A communication method in dealing with public issue is largely defined as public communication which consists of public education and consultation (Nisbet, 2009). These two aspects refers to the term of participation as these demand a knowledge transfer. Agree with this, some scholars note that education and consultation are required in bridging communication between government and its public to create community engagement (Rogers, 1995; Rice & Atkin, 2001). Thus, a public participatory communication is an essential ingredient in building CE.

Additionally, Rice & Atkin (2001) identify the characteristic of public communication which are aims to change behavior by using non-commercial communication approach to provide public education and facilitate public consultation. Therefore, Atkin (2001); McGuire (2001) underline the pertinent of situational analysis to frame the social and cultural factors of the target public. In the context of this research, public participatory communication campaign needs to identify public characteristics, needs, and interest to achieve not only effective communication but also effective integrated program implementation.

Enacting community engagement in a government program of internet distribution

The data evidenced that the implementation of internet distribution program has benefited a part of the rural community, particularly students. Unfortunately, the local community, such as farmers, breeders, and home industries communities in the area have not gained socialisation and have not sustained any empowerment. A top-down and hierarchical communication approach had challenged the government in engaging and empowering rural Indonesian community. Less communication effort has minimized community participation which contests the community engagement and empowerment in the rural area.

An exclusive engagement and empowerment

According to the observation in the selected rural area, the internet facility is placed in one of the moeslem boarding school majoring information and technology. Thus, the facility is mostly accessed by internal students, yet students from other schools and local community. The Internet Company representative (IC) explained that they placed the computer in the school as it has the supporting devices and resources to guarantee the internet facilities sustainability. This is confirmed by the school people that the program comes in the right place, at the right time as the school has looked for infrastructure grants, particularly internet, as they have a limitation to provide that.

The facility works well and supports students improvement in academic, social, and economic aspects. The internet facility has been effectively empower students in developing their creativity and talent. Interestingly, students build a creative club which work voluntarily in developing the facility into some projects, such as integrating audio visual and internet technology; conducting computer skills training to junior students, and implementing online marketing. Students participation in internet use are high as they study information technology major. Thus, the internet facility effectively supports the students learning process. At present, students have established website, television and radio program, also photo gallery through the internet access. The school people explain:

“The facility supports students academic and softskill in computer major. Students develop a club to organise the internet use schedule and maintainance.”

“Creative team has been a students club which facilitate their academic, social, and economic development. Not only teachers, but also all students here (in the moeslem boarding house) are proud to be the part of creative team.”



Picture 2. Team creative in the moeslem boarding school as the actor in developing government's internet facility

Additionally, the internet access has motivate the internal school students and staff member to develop their entrepreneur skills. According to their explanation, most students are expected not to burden their parents' economy. Thus, they learn about online marketing by invite an online marketing expert and implement the skills.

“Students are creatively and volunterily develop the internet facailities for their major study and softkills development. They are encouraged to learn about entrepreneurships by online marketing application. It supports not only their passion, but also their economic.”



Picture 3 & 4. The entrepreneurs' products in students online marketing activity

According to all statements above, it revealed that the internet facilities have established students' sense of belonging as one of the actors in developing the program sustainability. The program benefits students as a need and solution of their problem. This indicates that an empowerment required a fit and proper program with the problems, needs, and potencies of a community to boost its sustainability (Rice & Atkin, 2001; Atkinson et al, 2005; McGuire, 2001).

Additionally, IC representatives are regularly conduct coordination and internet maintainance to support the access establishment. Both the school people and the IC representatives explain that both sides are proactively updates the internet facilities progress, technically and socially. This indicates that community engagement were built through participatory communication (Kilpatrick, 2009; Visser, Lugt, & Stappers, 2007), that the students as the actor of the program were involved in the program implementation, particularly in developing and maintaining the facility. Servaes & Patchanee (2005) identify participatory communication which requires two-ways dialogical communication.

On the other hand, the local community representatives (LC) explained that they did not involved in the program implementation. Most of them stated that they do not even know about the program. During the program implementation in the moeslem boarding school, they thought that it is a grant for the school, not for the community.

“If it should be for community, we wish that we had the internet facility to be placed in our village office. But we do not even know.”

The statement indicates the absence of communication effort to local community representativesness from the very beginning. Additionally, they did not involved in the program implementation. Reflect to the program goals, the minimum communication efforts has failed to engage and empower the focal segment (Rogers, 1995; Rice & Atkin, 2001) of the local community, such as farmers, breeders, and home industries workers. As stated by one of the local government representatives that their people have less knowledge and opportunity to develop their potencies.

“Our people good in artistic karate performance, some local and national events invite us to perform, such as in Bali, Sumatera, event Singapore. We also have religious musical perfoemance (rebana), usually invited in wedding or local traditional event in kampoeng. They know us from mouth to mouth, no promotions.”

“...we have household production, such as cooking and cleaning utensils. We sell the product to reseller, then reseller sell it to the potential market.”

In fact, the people are encouraged to develop their potencies; however, the missing communication effort resulted in a higher gap between the government and the community (Park & Wang, 2010; Kvasny, 2006). The local community never been involved in a kind of public hearing or socialisation program. Clearly, the program was implemented based on the government interest, not community (Goddard, 2005).

Challenging community engagement

Community engagement has been a conceptual struggle for the government who implement a top-down approach in the internet distribution program. According to the local government representatives and community opinion leader, they did not received any socialisation of the internet distribution program. Although this is a central-coordination-program, they are expected to be socialised. Another hint in the exclusive engagement was explained as follow:

“Although this is a program from the central government, at least just let us know. We are their people here, we can assist that to penetrate the program effectively to the community.”

The statement emphasises that government failed to acknowledge the community representatives, also community as the actor, not the object of the community empowerment program. The government led the program to benefit some relevant partners such as the internet providers and placed the community secondarily. This implies that government conducts a program's actor acknowledgement based on a real economic and authority capital, but not social capital (Cavaye, 2000). Thus, community acknowledgement was missed and brought about a complete disconnection between the government and community.

Additionally, government ideally distributes not only the infrastructure but also benefits to the community. The program should involve a knowledge transfer (Nisbet, 2009) and power sharing (Head, 2007) that encourage community to create empowered actions (Cornish & Dunn, 2010). Relevant with the discussion of the program's actor acknowledgement, economic capital has pull the government to concern only on infrastructure. The internet distribution program has been less empowering because of the minimum community empowerment efforts (Park & Wang, 2010). Public participation and community control as pivotal factors in community empowerment program (Green & Hayes, 2012) are ignored that the empowerment appears exclusively.

Bridging the communities for better engagement and empowerment

Respondents' explanations imply a lacking comprehensive of community engagement and empowerment in the internet distribution program implementation. As engaging and empowering community requires community participation (Kilpatrick, 2009; Servaes & Patchanee, 2005), government is necessary to consider some pertinent aspects, such as community acknowledgement, a community-based program, and participatory communication.

Community acknowledgement refers to an effort to recognise the role of community as the actor, not object of the program. It demands social mapping to understand the local people, particularly the social roles and potential interests to support the program (Rice & Atkin, 2001; Green and Hayes, 2012; McGuire, 2001). Participation

requires not only profit orientation cooperation, but a genuine coordination and collaboration (Brown, Kerry and Keast, Robyn, 2003) into the relevant actors, including community representatives and members. Regarding the case study, a community membership mapping is required to scheme the position and roles in enabling community participation. Community is an entity; however, they may interest in different points (Brown, Kerry and Keast, Robyn, 2003). The case study presents that the school people notice in completing and improving their school facility for students, yet community. On the other hand, the local people concern on their potentials development with their minimum improvement capability. In fact, these mapping portray interesting opportunity to boost a comprehensive engagement and empowerment. An ignorance of this mapping may bring about a conflict in the community internally, which unable the engagement.

Next, the mapping of community will contribute to community participation establishment through communication activity. Enacting engagement requires proper communication methods and efforts in order to bridge many interests among relevant sides. Communication in an empowerment program highlights not only on distributing information, but also creating sustainability (Mckenzie, 2011), which refers to CBP.

According to the data, the case study has failed to implement a CBP program. The exclusive engagement and empowerment appear as a result of the exclusive communication. Thus, the government needs to apply participatory communication through relevant dialogical communication channel Servaes & Patchanee (2005), such as public hearing, public consultation, and public education (Rice & Atkin, 2001; Nisbet, 2009). The three channels aim to establish public empowerment as Cornish and Dunn (2010) note that participatory communication is on communicating rather than extracting or delivering information. Thus, the so called 'socialisation' should embrace a responsibility of empowerment aiming at community's quality of life, not just information diffusion.

Conclusion

The study adopted community engagement through participatory communication to examine the implementation of government's internet distribution program in one of rural area in Indonesia. The study takes the view that community acknowledgement, community-based-program, and public participatory communication are interrelated in empowering community engagement. The study revealed that economic and authority-based community engagement has resulted an exclusive engagement and empowerment. Notably, a genuine government-community empowerment program were clearly a challenge for the government who applied a top-down and exclusive communication approach and failed to acknowledge community as the actor, not the object of program implementation.

Community engagement is not an instant achievement; it requires a comprehensive stages of accomplishment through community mapping and participatory

communication. Apparently, government needs to be able to develop not only communication and managerial strategy, but also policy in integrating government-community of the empowerment program. The findings provide insights for government seeking to implement authentic sustainable community empowerment program in a developing country context. For stakeholders, this research provides criteria in developing community engagement in a rural community seeking to implement community empowerment.

This research focuses on one district area of the program implementation, which limits the generalisation to the program implementation in other districts of Indonesia. The study could be improved by larger sample size which may vary the results and insights for the community empowerment actors. Nonetheless, this research contributes to the growing literature dealing with community empowerment and engagement in the context of government program implementation.

The logo for the International Association for Business and Economics (IABE) is centered on the page. It consists of the lowercase letters "iafor" in a light blue, sans-serif font. The text is enclosed within a large, stylized circular graphic composed of two overlapping, thick, curved lines. The upper-left portion of the circle is a light red color, while the rest of the circle is a light blue color, matching the text.

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*Airlines Companies' Usage of Social Media: A Content Analysis of Airlines
Companies' Tweeter Messages*

Ahmet Tarhan, Kadir Canöz, Ömer Bakan

Selcuk University, Turkey

0443

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Abstract

The developments in knowledge and information technologies provide new opportunities for corporations. Corporations are realizing the potential to build relationships with publics using social media. Twitter, as a popular microblogging tool, is a social media platform used by corporations. Twitter has the possibility of informing target audiences about publicity, services and promotions of companies. Additionally, companies have received real-time feedback about organizational announcements and applications from target audiences. Following the study, it was found that most of the text messages in the twitter accounts of the airline companies were sent on weekdays and within the working hours, and the content of the messages were related to the provided services and offered special offers. Moreover, it can be seen that the majority of the texts messages (712; 79.4%) consisted of requests, suggestions, complaints and questions and the replies to them. Those findings show that the airline companies effectively benefit from Twitter in order to develop bidirectional communication with their clients.

Keywords: Airline Companies, Social Media, Twitter, Public Relations, Messages.

INTRODUCTION

The developments seen in the new communication technologies have also changed the communication and interaction of enterprises with target masses. The public relations which focussed on only informing the target mass through traditional mass media gave way to a new approach of public relations which target masses reach out the society, express themselves and the establishments immediately give responses to them.

Beside other enterprises, the airline companies were forced to adopt a strategy focusing on technological innovations in order to maintain the competence with other companies with the emerging of internet during mid 1990's (Buhalis, 2004: 808). Thus, the unilateral communication methods presented by the traditional media underwent a change and airline companies tended to accept a new management perception which adopts a bidirectional communication method sensitive to requests, suggestions, expectations and complaints of the target community.

One of the opportunities presented to the enterprises through the developments in the new communication technologies is social applications. The social media which is associated to the share of information, experiences and perspectives (Weinberg, 2009: 1), has been designed for the communication of people with their friends at the beginning and then it has turned into the tools which provide online communication of enterprises especially in the service sectors with their target groups and and has been gradually gaining importance (Wigand, 2010: 563).

Twitter, one of those social network sites, has the ability to provide dialogical communication between enterprises and target groups (Rybalko and Seltzer, 2010: 337). Thus, the enterprises are not only senders of text messages, they have gained the interactive characteristics both can send messages and receive the messages sent by the target groups. Findings of the study also show that the enterprises which interactively use the Twitter accounts have positive outcomes of public relations (Saffer et al., 2013).

The advantages of using social media for enterprises have been considered by the airline companies which aim to provide more quality services to their customers and form a customer loyalty; a new comprehension of public relations based on bilateral communication in which the customers were involved into the decisions to take and applications to perform.

The study focuses on the levels of utilization of Twitter which is one of the commonly used instruments of social media by 5 airline companies which operate in Turkey. The customers of airline companies are interrogated about the level of their utilization from the institutional Twitter accounts in developing responses to the demands, expectations, suggestions and questions related to new routes, promotion campaigns and current opportunities presented in services. Moreover, it was also questioned whether the airline companies used the Twitter accounts for announcement purposes through a unilateral communication or for the purposes of developing mutual dialogue through bilateral communication which social media present them.

REVIEW OF LITERATURE

Twitter, emerged through inspiring from a tool called TXT mob which was started in 2004 by a group of tech-savvy activists in order to protest some political decisions and spread their ideas to

large masses through short text messages to their mobile phones established by Jack Dorsay, a software engineer, in 2006 (Zarrella, 2010: 33).

Twitter which can be put into the category as a tool to facilitate online communication, participation and cooperation (Newson et al., 2009: 49-50), is also called a microblog tool. After obtaining a free account from the web address of Twitter.com, the accounts can be updated and text messages up to the length of 140 characters can be sent. The messages can be sent to the other Twitter users which are called followers; the users can also follow other users if they desire (Kamerer and Morris, 2011: 13-14).

Recently, a massive increase has been seen in the use of microblog services such as Twitter. In the first quarter of 2009, approximately three years after it was established, the registered users of Twitter exceeded the quantity of 14 million people (Weinberg, 2009: 125). Compared to the year of 2010, the users of Twitter increased with the rate of 182% and the number of tweets increased 140 million texts (Myers, 2011).

This increase in the amounts of users and the sent texts messages has revived the need for taking part in Twitter which requires much less time, provides the rapid consumer analysis and enables selling to the customers and is user friendly. The companies utilize Twitter in announcing the target groups about their new products and their suggestions related to those new products (Güçdemir, 2010: 101), in encouraging new blog consignments and presenting current news (Zarrella, 2010: 33), in increasing the sales through brand recognition (Wigand, 2010: 135), and the management of customer services and customer relations (Thoring, 2011: 143).

When the characteristics of Twitter as a tool are considered, it is possible to transfer the messages in short, synchronous and asynchronous forms since they are easy-to-use and limited with maximum 140 characters. Besides, it is convenient for both public sector and private sector and it enables the simultaneous and synchronous access to the target groups (Kamerer and Morris, 2011: 14).

Although Twitter is utilized by enterprises with the purpose of sharing more information and news (Güçdemir, 2010: 103), it provides significant opportunities to public relations units of the enterprises in receiving feedbacks from the target groups related to the products and services presented to them and executing some corrective/preventive activities related to them (Alikılıç, 2011: 17).

Moreover, Twitter differentiates from other tools presented by new communication technologies thanks to its technological aspects. When it is compared to a blog, on the contrary to the blogs, Twitter shortens the necessity of time through encouraging short text messages and enables numerous updating during day (Java et al., 2007: 57). Compared to other communicating tools from the insufficient web sites, on the other hand, Twitter enables immediate interactions of the enterprises with target groups (Saffer et al., 2013) and provides an opportunity to apply a conception of public relations based on bilateral and symmetrical communication.

When those advantages are considered, Twitter messages provides significant opportunities for the airline companies both in delivering the announcements to the large masses and creating

convenient responses and policies regarding the demands, suggestions, complaints, expectations and problems of the target masses.

There are limited researches in the literature related to the Twitter applications which provide significant opportunities about establishing and developing dialogues with the target masses from the point of enterprises. Although they are limited, it will be beneficial to employ the findings of the researches which contain the data such as the levels of enterprise in using Twitter, the contents of their messages and their purpose to utilize this tool of social media.

In their study which they performed in order to determine the contribution of Twitter for the development of cooperation between the parties, Honeycutt and Herring (2009), they found that Twitter has been used as a unilateral tool in directly transmitting the message to another user rather than cooperation.

In their study which they carried out on the use of Twitter by the company of 2009 Fortune 50, Case and King (2011) found that 27 of 50 companies (54%) used Twitter. The companies using Twitter utilize this social media tool in order to relay the news related to the company with the rate of 85% while this objective is followed by marketing/promotions, customer services and human resources.

Thoring (2011: 150) evaluated the Twitter accounts of the publishers from the point of interactivity. He found that majority of the analyzed messages consisted of tweet and retweets and only a small part of them consisted of the responses to interactive communication. The responses contain messages related to establishing a communication network with business world, customer services and customer relations rather than the announcements, promotions, branding, and perception management.

In their study which they carried out on Twitter users, Kamerer and Morris (2011: 25-27) stated that the tweets sent could be categorized as a helping desk where services such as news office, creating brands and problem solving, providing support to the customers. At the end of the study, although it is not at the desired levels, Twitter was used to develop the bilateral symmetrical communication.

Linwill et al., (2012), sent 10 text messages to the accounts of 60 state universities and 53 colleges of art and aimed to learn the levels they used this social media tool for the dialogue-based communication through 1130 messages in total. Accordingly, the education institutions were determined to use Twitter in transmitting the messages which contain institutional information to the target groups (1007; 89.1%) rather than developing the dialogue with target groups (123; 10.9).

Sreenivasan et al., (2012: 27-32) assessed the structure of the messages of three airline companies on their Twitter accounts through content analysis. Among the messages sent by the customers, complaints have the top rank while promotion, marketing that contains current events and updates of personal status follow the complaints. Among the messages of the airline companies; marketing including the promotions particular to the services of airlines, socialization in order to

obtain interaction between the airline companies and the users and responding the questions from the users. Another conclusion obtained from the findings is that all the three airline companies don't provide enough responses to the questions of the customers.

In their study to evaluate the levels of the effects of institutional Twitter interaction on the quality of relations between the institutions and target groups, Saffer et al., (2013) determined Twitter could affect the quality of relations when its is used as a tool of bilateral communication between the parties.

In the light of the studies in the literature and data obtained from studies, the questions to be answered as follows:

Research Question 1. What is the distribution of tweets sent by the airline companies having Twitter accounts, the institutions and individuals they follow and the number of their followers?

Research Question 2. What is the distribution of messages sent by the airline companies having Twitter accounts according to days of week and hours within days?

Research Question 3. What is the distribution of the contents of the messages sent to target groups within the context of institutions according to their topics?

Research Question 4. Are institutional Twitter accounts mostly run in unilateral form with the aim of informing the target group or in bilateral form with the aim of developing the communication between the parties?

METHOD

After the executed analysis; Atlasjet, Onur Air, Pegasus, Sun Express and Turkish Airlines which carry on business were found to have institutional Twitter accounts and the messages in the Twitter accounts of those five airline companies.

In the study, the messages in the institutional Twitter accounts of five airline companies having business in Turkey were dealt through content analysis for a period of one month between the dates of March 1, 2013 and March 31, 2013 in respect to the days of the week, hours of the day, their topics they were sent for; whether they were sent to the target groups unilaterally with the purpose of announcing to the target groups or they were sent to develop the dialogues with the conception of bilateral communication focusing on the demands, expectations, complaints, questions and suggestions.

During the analysis, total amount of messages in the Twitter accounts of five airline companies having business in Turkey, the number of institutions they follow and the number of their followers, whether they employ their institutional logos, their call-centers and institutional web addresses from the point of revealing the stylistic aspects of the accounts.

The analyses were maintained through distribution of the messages in respect to the days of week and hours of day. When it is considered that social media is a tool that can function on everyday of the week and every hour of the day, especially, the questioning of this data is crucial that the days of the week and hours of the day when airline companies use Twitter more effectively.

Another question in the study is related to the content of the messages in the Twitter accounts of the airline companies. The messages in the accounts were classified according to their topics and the content of the messages were questioned related to the activity area of the airline companies.

The analyse were finalized through questioning whether the airline companies utilize from the Twitter accounts in a unilateral form with the aim of informing in any topics or bilateral form of the communication with the purpose of obtaining the responses and feedbacks of the passengers related to the services given by the airline companies.

FINDINGS

General View of the Twitter Accounts of the Airline Companies

General view of the institutional accounts of five airline companies in Turkey was given in Table 1. Accordingly, institutional Twitter accounts of the five airline companies in Turkey were analyzed. Those airlines companies, in alphabetical order, are Atlasjet, Onur Air, Pegasus, Sun Express and Turkish Airlines, respectively.

Table 1. General View of the Twitter Accounts of the Airline Companies

| AIRLINE COMPANIES | TWEETS | FOLLOW | FOLLOWERS | CORPORATE LOGO | CALL CENTER | URL TO WEB PAGES |
|-------------------|--------|--------|-----------|----------------|-------------|------------------|
| ATLASJET | 2.079 | 15.797 | 31.518 | + | + | + |
| ONUR AIR | 963 | 405 | 5.970 | + | + | + |
| PEGASUS | 2.547 | 1 | 36.581 | + | - | + |
| SUN EXPRESS | 57 | 2 | 3.802 | + | - | + |
| TURKISH | 3.140 | 31 | 277.47 | + | - | + |

When the messages of five airline companies in Turkey having institutional Twitter accounts as of the date of May 1, 2013, the top user is Turkish Airlines with 3.140 tweets. Pegasus and Atlasjet follow Turkish airlines with 2.547 and 2079 tweets, respectively. The company having the least tweets in its institutional Tweeter account is Sun Express with 57 tweets.

When the Twitter accounts of the institutions and individuals followed by the airline companies were analysed, Atlasjet is at the top rank with 15.797 while Onur Air and Turkish Airlines follow it with 405 and 31, respectively. From the point of individuals and institutions followed by the airlines companies, Sun Express and Pegasus share the bottom two ranks with 2 and 1 people to follow, respectively. Here, we can understand that Atlasjet utilize its 15.797 institutions and individuals to follow as if they were news sources through Twitter.

When the followers are assessed, Turkish Airlines is on the top rank with 277.470 followers. Turkish Airlines is followed by Pegasus and Atlasjet with 36.581 and 31.518 followers, respectively. The difference of Turkish Airlines from other airline companies is its background as the first airway company, its membership in Star Alliance and being an institution which flies to both many cities in the country and numerous countries abroad.

The Distribution of Tweets Seen in the Twitter Accounts of Airline Companies According to Time

The distribution of the messages seen in the Twitter accounts of airline companies in Turkey is another topic evaluated in the study. Because, social media provides airline companies an opportunity to maintain the interaction with the target groups on 7 days a week and 24 hours a day and develop dialogues related to the demands, complaints, suggestions and expectations of them. In order to determine the hours of day which airline companies receive the messages in their institutional accounts, a day was divided into twenty four hours and the hours which most of the messages were sent and received were interrogated.

Table 2. The Distribution of the Messages in the Twitter Accounts of Airlines According to their Time

| AIRLINE COMPANIES | 12.00 AM-05.59 AM | 06.00 AM-11.59 AM | 12.00 PM -05.59 PM | 06.00 PM-11.59 PM | TOTAL |
|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|--------------|
| ATLASJET | 103 | 147 | 17 | 17 | 284 |
| ONUR AIR | 36 | 36 | 36 | 4 | 112 |
| PEGASUS | 72 | 95 | 10 | - | 177 |
| SUN EXPRESS | 6 | 4 | - | - | 10 |
| TURKISH AIRLINES | 104 | 140 | 53 | 17 | 314 |
| TOTAL | 321 | 422 | 116 | 38 | 897 |

When the times which the messages in the Twitter accounts of the airline companies are analysed, the density was between 06:00 a.m. and 05.59 p.m. When the distribution of the messages in the Twitter accounts are considered, 538 (59.9%) messages were seen to be sent or received within working hours, while 359 (39.1%) messages were sent or received after hours, namely, between 00.00 and 05.59 at night and 06.00 and 11.59 in the evening.

Another point that draws attention in the findings is related to the time when the research is carried out; Sun Express Airline Company has only ten messages although it has an institutional Twitter account. This finding shows that Turkish Airlines most effectively utilized Twitter which is one of social media tools with 314 tweets and Sun Express failed in utilizing this tool in the required effectiveness.

Table 3. The Distribution of the Messages of the Airline Companies According to Days

| AIRLINE COMPANIES | ON WEEKDAYS | AT THE WEEKEND | TOTAL |
|--------------------------|--------------------|-----------------------|--------------|
| ATLASJET | 224 | 60 | 284 |
| ONUR AIR | 97 | 15 | 112 |
| PEGASUS | 139 | 38 | 177 |
| SUN EXPRESS | 4 | 6 | 10 |
| TURKISH AIRLINES | 244 | 70 | 314 |
| TOTAL | 708 | 189 | 897 |

Another topic analysed in the distribution of the messages in the institutional Twitter accounts of airline companies in Turkey in accordance with time is the distribution according to the days of week. The basic topic questioned here is whether the messages were sent or received on weekdays or at the weekend. When Table 4 is analysed, majority of the messages were sent and received in the Twitter accounts of the airline companies on weekdays. 708 (78.9%) of the messages in the Twitter accounts of the airline companies were on weekdays while 189 (21.1%) of them were at the weekend.

It shows that the messages sent and received by the airline companies take place on weekdays and within the working hours. This finding is significant since it shows that both institutions and customers don't benefit from the communicating aspects of Twitter on 7 days of the week.

The Distribution of the Messages in the Tweeter Accounts of the Airline Companies According to their Topics

Another point to discuss within the study has been the topics in the messages in the Twitter accounts of airline companies, the density of topics which this social media is utilized for (Table 4).

Table 4. The Distribution of the Messages in the Twitter Accounts of the Airline Companies According to Their Topics

| CONTENT OF MESSAGES | ATLASJET | ONUR AIR | PEGASUS | SUN EXPRESS | TURKISH AIRLINES | TOTAL |
|------------------------------------|-----------------|-----------------|----------------|--------------------|-------------------------|--------------|
| APPLICATIONS | 138 | 93 | 34 | 7 | 137 | 409 |
| DELAYS | - | 6 | 1 | 1 | 16 | 24 |
| SPONSORSHIPS | 2 | - | - | - | 16 | 18 |
| NEW ROUTES | 40 | 6 | 24 | - | 15 | 85 |
| INTRODUCTION OF THE COUNTRY | 51 | - | - | - | 42 | 93 |
| CANCELLATIONS OF FLIGHT | 8 | - | - | - | 11 | 19 |
| PROMOTION CAMPAIGNS | 42 | 5 | 114 | 2 | 68 | 231 |
| CELEBRATIONS AND COMMEMORATIONS | 3 | 2 | 4 | - | 9 | 18 |
| TOTAL | 284 | 112 | 177 | 10 | 314 | 897 |

When the distribution of the messages in the Twitter accounts were analysed according to their topics, they were seen to focus on the applications such as check in, online check in, airport ground services, transportation, and the sale of ticket (409; % 45.5). This topic is followed by the promotion campaigns (231; 25.8%), the introduction of the country (93; 10.5%), new routes (85; 9.5%) and delays (24; 2.6%). The lowest rates of the topics of the messages in the Tweeter accounts of the airline companies were about cancellations of flight (19; 2.1%), sponsorships (18; 2.0%) and messages for celebrations and commemorations (18; 2.0%).

It was determined that approximately half of the messages in the Twitter accounts of the institutions related to airline transport in the service sector (45.5%) were related to the provided services. Turkish Airlines and Atlasjet, Twitter show equal distribution in the messages related to the services they provide to their customers.

Communicative Aspects of the Messages Seen in the Twitter Accounts of Airline Companies

It was also questioned that whether the messages seen in the Twitter accounts of the airline companies are used in unilateral form from the point of public relations or it is aimed to develop dialogues with target groups through bilateral messages.

When the aspects of the messages in the Twitter accounts of airline companies were analysed in terms of content and their techniques; it was determined that the airline companies preferred URL due to the restriction of messages with 140 characters (106; 11.8%). Nevertheless, the airline companies were determined to utilize announcements (60; 6.6%) in order to inform their

customer on any topics and retweets (19; 2.1%) which enables directly forwarding any messages without interfering in the content of the messages.

Table 5. Communicative Aspects of the Tweets Seen in the Twitter Accounts of the Airlines

| | URL | ANNOUNCEMENTS | RETWEETS | DEMANDS | COMPLAINTS | SUGGESTIONS | ACKNOWLEDGEMENTS | CRITICS | QUESTIONS | REPLIES | TOTAL |
|--------------|------------|---------------|-----------|----------|------------|-------------|------------------|------------|-----------|------------|------------|
| ATLASJET | 28 | 7 | 2 | 2 | 2 | 3 | 16 | 20 | 29 | 136 | 284 |
| ONUR AIR | 5 | - | - | - | 3 | 1 | 12 | - | 4 | 51 | 112 |
| PEGASUS | 12 | 37 | 13 | 8 | 5 | 4 | 17 | 17 | 18 | 46 | 177 |
| SUN EXPRESS | 5 | - | - | - | - | 1 | - | 4 | - | - | 10 |
| TURKISH | 56 | 16 | 4 | 1 | 2 | 6 | 22 | 64 | 28 | 106 | 314 |
| TOTAL | 106 | 60 | 19 | 3 | 6 | 15 | 67 | 105 | 79 | 339 | 897 |

The techniques of using URL, announcement and retweets in the messages sent may be included into the process of unilateral communication. It can be seen that the airline companies utilize these technique related to the topics such as services, the introduction of the country, sponsorship, new routes, flight-cancellations, and celebrations-commemorations and they mostly have the aim of informing the customers.

When the message forms of airline companies in accordance with bilateral communication model; the distribution is seen as follows: replies (339; 37.7%), critics (105; 11.7%), questions (79; 8.9%), complaints (69; 7.7%), acknowledgements (67; 7.5%) demands (38; 4.3%), and suggestions (15; 1.7%).

The replies to the messages of the customers sent from the Twitter accounts of the airline companies containing demands, complaints, critics, suggestions, admirations, and questions related tot some applications may be mainly considered as bilateral with the aim of developing dialogues which the parties are equal.

When the general distributions are handled; majority of the messages in the institutional Twitter accounts of five airline companies in Turkey (712; 79.4%) were determined to be questions, demands, suggestions, complaints and critics related to the services provided by the airline companies and the responds of airline companies. Moreover, the total amounts of the messages containing the use of URL, announcements and retweet applications with some purposes such as the services provided by the airline companies, new routes, cancellation of flights and the introduction of the country is 185 (20.6%).

When the findings are evaluated, it was determined that the airline companies use Twitter in order to set up a dialogue with target groups and develop conversation rather than building unilateral communication. This is a huge opportunity for both airline companies adopting the customer satisfaction-based service perception and the customers receiving services from those companies. The customers may have find opportunities to express their expectations for better service and the airline companies will have the chance to develop their service quality in accordance with the demands and expectations of their customers. Especially, the information obtained by the public relations units of the airline companies will provide significant hints in the race with other companies they are competing.

CONCLUSIONS

The public relations units of the institutions have achieved the opportunity to be closer to their target groups through new communication technologies and reach them directly without using mediators. By means of social media, the institutions have achieved the opportunity of actualizing a bilateral communication perception which can provide answers to demands, suggestions, expectations, complaints and questions of their customers as well as the unilateral communication perception which only aims to inform the target groups as seen in the traditional tools.

According to the findings of the research, it was determined that the messages in the Twitter accounts of the airline companies were sent within the working hours between the hours of 06:00 a.m. and 05:59 p.m. Accordingly, 538(59.9%) messages were sent or received within the working hours, 359 (39.1%) of them were sent or received during after hours. Among the messages in the accounts of airline companies, 708 (78.9%) of them were sent on weekdays while 189 (21.1%) of them were received or sent at the weekend. It shows that the messages which the airline companies received and sent are on the weekdays and within the working hours. This finding also shows that both institutions and customers fail in utilizing the aspects of Twitter which enables communicating on seven days of the week.

When the distribution the messages in the Twitter accounts of the airline companies are analyzed, the airline companies were seen to focus on the service they provide (409; 45.5%). It is followed by promotion campaigns (231; 25.8%), the introduction of the country (93; 10.5%), new routes (85; 9.5%) and delays (24; 2.6 %). The lowest rates of the messages in the Twitter accounts of the airline companies are seen in flight cancellations (19; 2.1%), sponsorships (18; 2.0%) and celebration-commemoration (18; 2.0%). The density of the messages focusing on the presented services is related to the fields of activity of the airline companies.

It was found that majority of the messages in the Twitter accounts of five airline companies in Turkey comprised of questions, demands, suggestions, complaints, critics of the customers related to the services provided by the airline companies and the responses of airline companies to those messages (712; 79.4%). Besides, total quantity of the messages containing the services provided by airline companies, promotion activities, new routes, the flight cancellations and the introduction of the country are 185 (20.6%). This finding is significant since it shows that the airline companies utilized from social media not only to inform their customers but also establish a dialogue and develop dialogue with their customers. This is a huge opportunity for both airline companies which adopt the customer satisfaction focused service perception in the service sector and the customers getting services from those companies.

Thus, the customers will be able to express their expectations for a better service and the airline companies will be able to develop their service quality in accordance with the demands and expectations of their customers. Especially, the information which the public relations units of the airline companies will provide significant hints in the race which they compete with other companies.

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The logo for the International Association for Business Communication (iafor) is centered on the page. It consists of the lowercase letters "iafor" in a light blue, sans-serif font. The text is enclosed within a large, faint, light blue circular graphic that is partially obscured by a red, brush-stroke-like arc on the left side.

Reducing Production Costs of Jasmine Rice with Quality Control Circle (QCC)

Prawach Chourwong

RajabhatRajanagarindra University, Thailand

0476

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Abstract

Our research objective was to find ways to reduce the cost of growing jasmine rice in Chachoengsao, Thailand. The finding revealed that the estimated costs of production were high up to 4,403.39 baht/rai with an average yield of 467.62 kg/rai. The transfer of technology with a Quality Control Circle was proposed to reduce costs of production. Attempts were made to determine the problem solving of risk management before and after the application, and analyzed the cost of problems using technique QC 3 tools, i.e., check sheet, Pareto diagram, and the cause and effect diagram. It was found that the cost of process of the soil-preparation using fertilization for the cultivation was high at 1,400.32 baht/rai due to the lack of soil-analysis before planting rice. In order to rectify the problem, it was recommended that a team work should be applied with a Quality Control Circle. The training methods comprised of an analysis of the soil samples, and the techniques of using simple analysis kits. The results of the trained methods could reduce the cost of fertilizer application down to only 468 baht/rai or 66.57 percent.

Keywords: Jasmine rice, costs reduction, QCC.

Introduction

In present rice is important in the economy of the country. It is the cornerstone of the whole countries in terms of economy, society, culture, rice cultivation areas of about 56 to 68 million hectares per year, which are the major areas of production and off-season or equivalent to 40 percent of agricultural land across the country. The exports can also raise the money and currency in the country. Exports have increased every year due to Thailand's advantages in the quality and standard of rice. The uniqueness of rice products in Thailand is a popular food throughout the country. It has been shown that in the world market by the year 2001 to the year 2010, the amount of rice export was 84,300,250 tons, which was equivalent to 1,179,223 million baht, where the Jasmine races 105 varieties were very famous in Thailand. The estimated areas of cultivation are approximately 18,631,473 acres throughout the country, whereas in the Northeastern Thailand it has been estimated that an area of 15,383,756 acres of crops have been cultivated in the ThungKula area. It was reported that the second large area ranging from 2,107,681 acres to 2,021,954 acres, in the northern Thailand, which was covered an area of 1,220,871 acres (Office of Agricultural Economics, 2011).

However, Thailand has suffered from the low cost of production of rice in the country during the mid-season between the year 2001 and 2011, where it has suffered for the second year in February 2011. It was found that the costs of the paddy were 7530 baht average productions per ton (Office of Agricultural Economics, 2011) during the day, the Department established milling. On the occasion of the fifth anniversary year and advanced to the 6th anniversary of the Department of Rice, Rice County Social worker routine accordingly, the Department's policy is emphasized to improve the quality of Thai peasant farmers, and set up a new policy to reduce the production costs. The spring's new is connected to this body of knowledge on the subject of reducing the cost of production for farmers to achieve, where the strong activity in community centers and peasant farmers can lead to sustainable competitive in the global market. (Department of News, Reporting, 2011)

It had been estimated that reserved areas for rice cultivation in Chachoengsao province especially for Jasmine rice 105 was 96,408 acres, where the yield of rice was 335 kg per hectare. Jasmine rice 105 has been found to be of good quality rice for the first time and established in Thailand, which has been known all over the world over the last 10 years, where farmers have turned to grow as rice crop substitution. The decreasing in the production of Jasmine rice 105 was approximately 19.42 percent from 10 years ago, which was due to the high cost of producing rice (Office of Agricultural Economics, 2011), resulted in decreasing in the Jasmine rice 105 cultivation. So, it is of interesting to find ways to reduce the cost of rice cultivation especially for the Jasmine rice 105 in Chachoengsao province, and offer instructions according to the policy of the Department of Rice to reduce the cost of production of rice.

Research Methods

Researchers explored the area, which planted with rice and hand out questionnaires. The participants were interviewed with relevant theory and research. Quality Control Circle: QCC and the proposal of how to reduce the cost of growing Jasmine rice 105 were distributed in Bangkhla district, Chachoengsao province. All details and steps used were as follows:

1) How to create a query tool that was used for this research study? Queries made by applying the test accuracy and test with a confidence value. Accuracy was scrutinized by a panel of experts to examine the content validity of the questionnaire in order to ensure the accuracy and precision of the content-oriented queries before use.

2) An analysis of the costs of production of Jasmine rice 105 in Chachoengsao province by using field data, which all queries about the cost of the entire production process were obtained from the cultivation in the selected areas, the harvesting and storage, and the information that distributed with a Check Sheet.

3) Transferred of technology, which could help to reduce costs with the Quality Control Circle with the applications and operating systems that aimed to reduce the costs by group QCC (farmers).

3.1 Attempts were made to trained the farmers to participate in using all technologies regarding to the agricultural production system that suitable for Jasmine rice 105 (GAP) and how to cut costs at every stage in the production process for the production of Jasmine rice 105 in Bangkhla district, Chachoengsao province. All attempts were done in collaboration with the provincial Department of Agriculture and the Department of Clay Pot Rice and a Stud Farm.

3.2 The application of Training Quality Control Circle, QC Story, and QC 7 tool was done to analyze and find the cause of the problem during the cost of production of Jasmine rice 105.

3.3 Establishment of cost reduction activities for the Jasmine Rice 105 after training, where the first group was dealing with statements a fixed group.

4) An analysis of all causes of problems with the Quality Control Circle with QC 7 tools, where the third one consisted of a check sheet, Pareto diagram, and fishbone diagrams or cause, and effect diagram profile, as follows:

4.1 The distribution of a check sheet was used to determine the elimination of the Jasmine rice 105's services. The process of preparing soil for the harvesting and storage awareness, the cause of the problem, and the cost of rice production, were given at the beginning of the season.

4.2 The Pareto Diagram was applied to compare and see if the individual were very important. The only different was that it was used as a guide in selecting a major cause analysis and to find the correct one.

4.3 The cause and effect diagram was used to analyze factors, that could cause an impact on the process of planting rice in both the real and the sub-factors. The factors that affected the cost of cultivation derived from the analysis of the abovementioned diagram were farmers or equivalent to man in the diagram, raw materials that were used in the rice cultivation (chemical fertilizers especially the Eagles that allowed only eliminate pests), and methods or process of rice cultivation, which emphasized on maintenance of the cultivation by using fertilizers.

5) The proposed amendments to reduce the cost of growing Jasmine rice 105 were distributed to all farmers.

Results and Discussion

1) The cost of production of Jasmine rice 105 in Chachoengsao province was analyzed with the adoption. The data from the survey revealed that the costs of production processes were started from the cultivation, the preparation of seedling, maintenance processes of rice cultivation, harvest and post harvest or storage of rice.

1.1 Results of analysis of the data from the Check Sheet regarding the production cost of Jasmine rice 105 survey questionnaires revealed that the average age of farmers was over 51 years old with a very low level in education, i.e., as in an elementary school or lower. In general, the combination of organic fertilizers and chemicals were used in rice cultivation in the study area, without the application of Good Agriculture Practices: GAP). The soil structure was consisted mostly of clay in the lowland areas, where water was brought in from the irrigated canal. The sole sources of water were from the canal with some parts from rainwater, which were important factors of the production costs where it brought up the cost to 4403.39 baths per rai. The factor that raised the production cost was the use of the fertilizer, where the cost was as high as of 1,400.32 baht per rai with an average of rice production at 467.62 kg per rai.

2) Results of the application and of operating system costs by reducing the Quality Control Circle (farmers) were obtained as described below.

2.1 The process of training for volunteer farmers in agriculture in Chachoengsao province was done with the assistance of personnel's of the Research Office, and authorities from the provincial Agriculture Department. The topic of the technology transfer was to reduce the cost of fertilizer's utilization, which was taken place on 26 to 27 January 2012. It was shown that the topics and content were relevant to the topic of the research and the research community very well. The lectures were done by authorities from the provincial Department of Agriculture, where the topic regarding the harmony of teamwork related to the Quality Control Circle in subjects and were given to 150 participants from the village. It was found that results of survey by questionnaire and the test of a representative sample of the total 109 cases had an average score of knowledge between 2.99 to 3.91, with a median of total sample at 3.66, the value of differences in opinion was 0.28 percent. There was an overview of all opinions fell in the most categories.

2.2 It was shown that those farmers who attended the training of Quality Control Circle could use the knowledge as a self-knowledge. They understood the function and were able to use it as a tool to analyze the problem properly, and gained a good attitude regarding rice plantation. Rice farmers were able to use the experience from the field and from the Quality Control Circle to apply in order to reduce costs, and gained benefit after the operation. They gave a harmony and respect to each other feedback of other people's comments.

2.3 Regarding to the establishment of a Quality Control Circle from the Training knowledge, attempt to establish the Quality Control Circle group as a separate group was made. One group formed by 10 people were called as BangKhla common group, and set up group motto as "reduce cost, increase productivity, brainstorming to

achieve some goals". The author served as a consultant to the group. This activity was carried out on February 15, 2012.

2.4 An analysis of the cause of the problem with the Quality Control Circle, and the operations to improve cost reduction could be described by Rice and results analysis, where details were summarized as follows:

2.4.1 Results of the use of Check Sheet to determine the distribution of data regarding to the cost of Jasmine rice 105 from the three processes, below the soil after harvest, and the conduct.

Table 1. Showing details the costs of farmers planting Jasmine rice 105 at Bangkhla district, Chachoengsao province.

| The process of growing | | Costs. (baht / rai) | Percentage |
|--|---|------------------------|------------|
| Maintenance (fertilizer) | A | 1400.32. | 31.80 |
| Harvest management | B | 1131.38 | 25.70 |
| Post-harvest practices | C | 536.75 | 12.18 |
| The cedar tree seeds State | D | 419.90 | 9.53 |
| How to transplant | E | 277.20 | 6.30 |
| Management or production areas | F | 242.28 | 5.50 |
| State of the soil | G | 221.16 | 5.02 |
| Eliminate the disease, insects and animal protection Prof Instruments rice | H | 174.40 | 3.97 |
| Total | | 4,403.39 | 100.00 |

2.4.2 Results of the use of Pareto Diagram to compare the results of other factors that might cause the problem suggested that the cost of processes of care (fertilizer) was high, while the rice was first considered. A value of 1,400.32 baht / rai or 31.80 percent was obtained, so there was a need to find solutions first. Details are summarized in Figure 1.

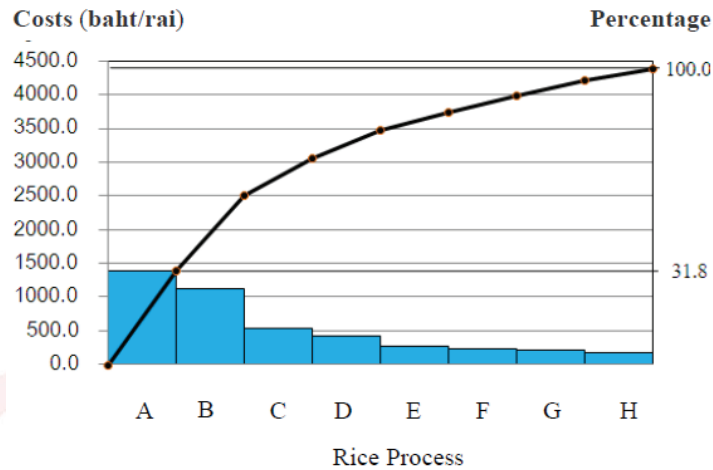


Figure 1. Showing Pareto diagram comparing the importance of the cause of the problem.

2.4.3 Results of the use of fishbone diagrams or cause-and-effect diagrams showing the amount of fund that they spent were summarized as shown in Figure 2. QCC members appeared in the brain that causes the costs of care (fertilizer) due to higher inputs. In many aspects, the lack of knowledge of the process, such as the lack of soil to determine the soil before planting crops was discovered. It was also found that the yield was less after checking the soil. Thus, the question was raised whether there was a way to use the same fertilizer. The use of fertilizers as the raw materials was not quite convinced. The summary of their believe concerning the quality of the fertilizer is shown in Figure 2.

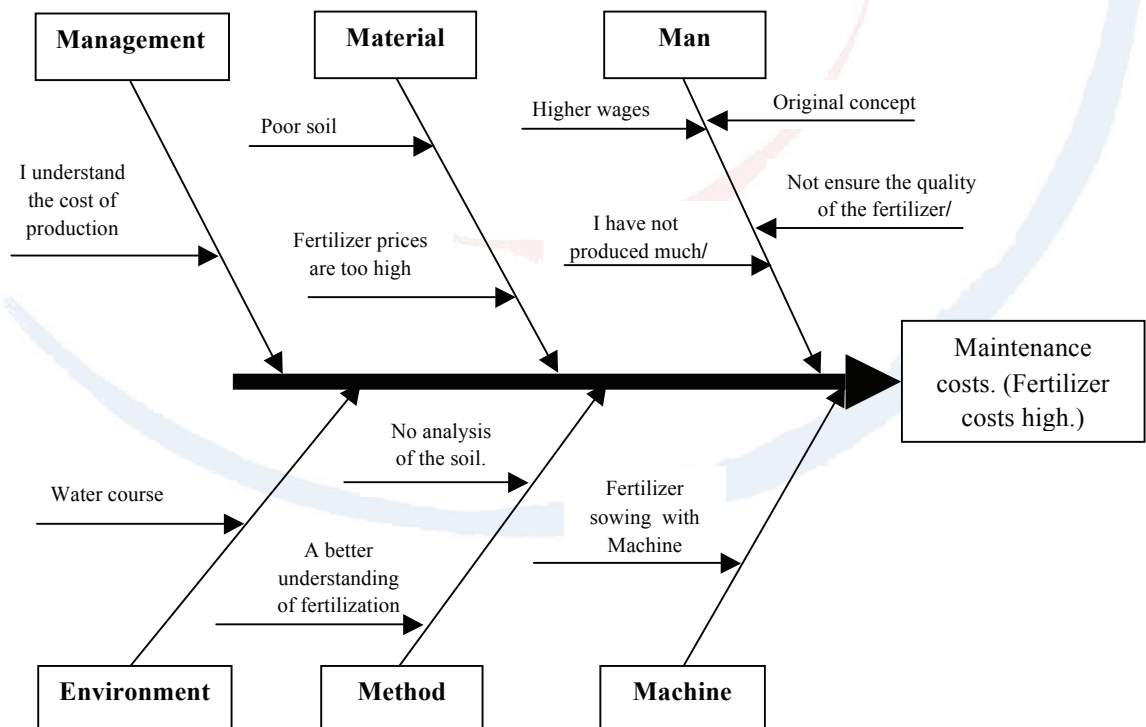


Figure 2. Showing the Cause-and-effect diagrams of the fertilizer
 3) The proposed improvement and cost reduction for jasmine rice 105.

3.1. The farmer should be trained to increase the farmer's knowledge. If the box was checked, fertilizers and chemicals, such as pesticides and herbicides, they should check for quality and contamination.

3.2. The training samples should be applied to analyze the soil properly, the method of training should be practiced in the actual field.

3.3. The training process on how to use the operating instructions for the management of soil and fertilizer plots should be emphasized.

Conclusion

1) The method of collecting of information using the survey with interviewing and complete questionnaires revealed that most farmers had an average age of over 51 years old, with a very low level in education, which was as low as elementary school or lower. They used the combination of organic fertilizers and chemicals without the application of GAP. They have known how to cultivate the good and proper farming rice (Good Agriculture Practices: GAP). Most of the characteristics of land are mostly flat, where clay was the main component of the soil. The main source of water was from canal with some supplements from rainwater. Water from irrigation canal and rainwater pushed the production costs up to 4403.39 baht per rai. The steps that lead to the highest-cost maintenance (fertilizer) have amounted to 1400.32 baht per rai. The average yield per acre is 467.62 kg per rai.

2) The transfer of technology to reduce costs with the Quality Control Circle should be done by training farmers and recommend to form a group. The participants were interested in the group QCC as a way to solve a large percentage of the manufacturing cost. After training, farmers who were trained under the project gained the knowledge and get benefits from this kind of partnership the worked as teamwork. They learned how to listen to opinions of the others, were able to use as a tool to analyze the problem correctly. It was noted that the process of maintenance of rice plantation (fertilizer) was the major factor that increase the costs of production. The farmers were lack of knowledge to analyze the soil before planting crops, and check the soil. Is there a way to use the same fertilizers? The use of fertilizers is the raw material or not. It is very important to ensure the quality of the farmers through training, fertilizer, soil sampling and analysis of the soil before planting. According to the analysis of rice and fertilizer, it was recommended that farmers should pay attention on the management of soil and fertilizer, and the conversion of the land, which allowed farmers to reduce fertilizer costs only 468 baht / rai. 66.57 percent.

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*A Simulation and Genetic Optimization Framework for Optimizing Nitrogen
Fertilization for Rice Crop*

Pannavich Ariyatanakatawong, Worapoj Kreesuradej

King Mongkut's Institute of Technology Ladkrabang, Thailand

0511

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Abstract

Precision agriculture is a technique that can enhance the current agricultural production system dramatically. Optimizing Nitrogen fertilization for rice crop is one of important research issues in Precision agriculture because it can decrease the cost of rice farming, reduce environmental pollution and increase grain yield. The optimal amount of nitrogen (N) and schedules depend on several factors such as soil conditions, cultural practices, varieties of rice, and etc. For traditional approaches of fertilizer optimization, may costly and take a long time.

Therefore, a new simulation and Genetic optimization framework for searching for the optimal fertilizer schedules and the optimal amount of nitrogen (N) for rice crop are proposed. The proposed framework is based on genetic algorithm and *Oryza2000* Model. Firstly, the *Oryza2000* Model is calibrated and validated using field experimental data. Secondly, the calibrated *Oryza2000* model is utilized as simulation model in searching for the optimal fertilizer allocations during the crop growing period and the optimal amount of nitrogen (N). To validate the proposed framework, field experiments are conducted in Chachoengsao Province of Thailand. From the experiments, the total yield of rice crop significantly increases after applying the optimal fertilizer schedules and the optimal amount of nitrogen (N) provided from the proposed simulation-optimization framework. The results of the study suggest that by employing a calibrated crop growth model combined with genetic algorithm can lead to achieve maximum yield.

Keywords: *Nitrogen Fertilization Application Optimization, Rice growth simulation models, Genetic algorithm*

INTRODUCTION

Rice is a staple food for more than 3 billion people in the world (IRRI 2005). Thailand also consumes rice as their staple food. Rice production (2012-2013) is likely to drop to around 37.4 million tons due to droughts and continental climate, which is below 3.6% from an estimated 38.8 million tons in the previous year (An official of the Agriculture Ministry, Thailand). For a long period, one important investigative area for scientists has been how to follow the changing weather to adjust timely cultivation measures and acquire a stable and high grain yield with lower investment.

With the rapid development of information technology, great progress has been made both in system cybernetics (Wiener, 1961; Rose, 1974; Hudetz, 1975; Masuch et al., 1990) and in crop simulation (Duncan, 1965; de Wit, 1971; McMennamy et al., 1983; Ritchie et al., 1987; Penning de Vries et al., 1989; Williams et al., 1989) during recent decades. Crop simulation has been concerned with more than ten kinds of crops, including wheat, maize, rice, barley and sorghum. *Oryza2000* is an application for summarize the scientific background of the lowland rice models. This application has developed at the International of Rice Research Institute (IRRI) in the Philippines in cooperation with Wageningen University and Research Center (WUR) the Netherlands by Bouman et al. and released in the year 2001.

Recent developments in crop growth simulation model have given the opportunities for simulating the field conditions. Adequately calibrated and validated agricultural system models provide a systems approach and a fast alternative method for developing and evaluating agronomic practices. This approach is also useful to minimize nutrient additions while meeting the demand imposed by rapid growth.

In this study a novel approach for N fertilizer application management is proposed. The approach employs *Oryza2000* model (Bouman et al. 2001) for developing optimal N application schedules for rice crop *Oryza sativa* by integrating it within an optimization framework. The parameters of *Oryza2000* model are optimized and validated using the data collected from field experiments conducted in three crops. Then, the calibrated *Oryza2000* is integrated with a genetic algorithm (GA) based optimization framework to derive optimal N fertilizer schedules that maximizes the crop yield. The results are compared with traditional N fertilizer application techniques. *Oryza2000* is selected for the current research since paddy is the major crop cultivated in the study area.

SIMULATION –OPTIMIZATION FRAMEWORK

A block diagram of the proposed simulation-optimization framework is presented in Fig. 1. The optimization framework along with a simulation model is to determine the optimal nitrogen balance. The objective function of the optimization scheme is to maximize the total yield from the nitrogen balance application command.

Initially, genetic algorithm generates initial population. The constraint conditions of populations are governed by decision variables (or parameter). Each pattern of populations is considered as N application schedules for rice crop *Oryza sativa*. Then, each nitrogen pattern is evaluated by simulating with *Oryza2000* model. *Oryza2000* model will provide calculated yields of crop for each nitrogen pattern. These calculated yields of crop are considered as fitness values for each nitrogen pattern. Then, nitrogen patterns (or populations) with top m

fitness values are selected. These selected nitrogen patterns (or populations) are crossed over and then mutated to generate the next generation of nitrogen patterns. New nitrogen patterns of the next generation are allowed having a lower and upper bound of the values within -10% and +10% from previous generation. These new nitrogen patterns are re-evaluated until stopping criteria met. Finally, the best N application schedules for rice crop *Oryza sativa* can be found.

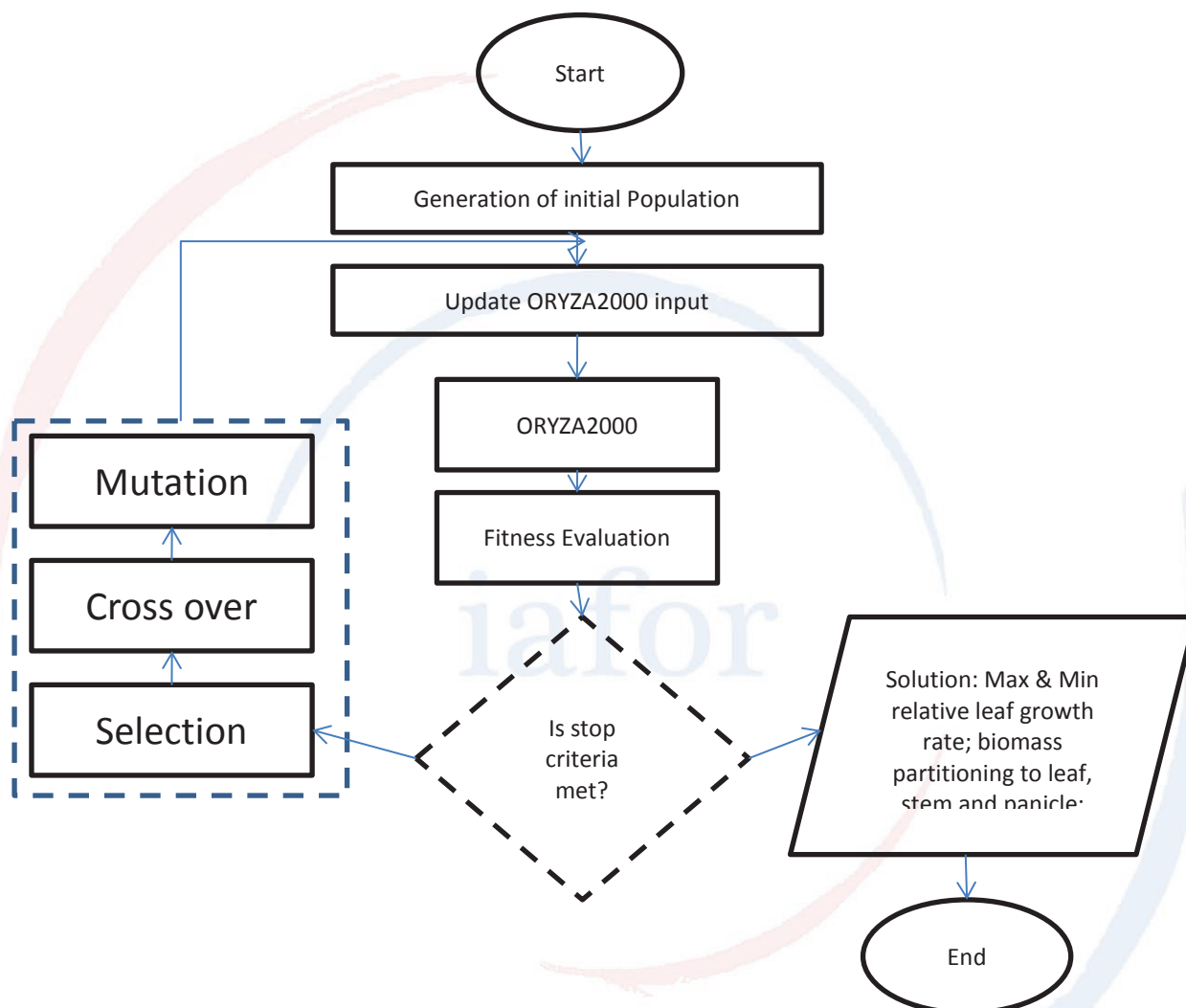


Fig. 1 Optimum of Nitrogen pattern scheduling using crop growth in simulation-optimization framework

Crop growth simulation model-ORYZA2000

ORYZA2000 is an eco-physiological crop growth model that simulates the growth, development and water balance of rice in situations of potential, water limited, and nitrogen limited conditions on a daily basis. Since rice is the major crop cultivated in the study area, we selected this model for our study. While there are a few other crop growth models for rice that are available [e.g., RICEMODE (McMennary and O'Toole 1985), WOFOST (Boogaard et al. 1998)], the *Oryza2000* has been extensively used and tested for its efficiency in water limited conditions, and the results were encouraging (Belder et al. 2007; Feng et al. 2007; Arora 2006; Belder et al. 2004), and therefore is considered in the current study.

A detailed explanation of the model along with the program source code is given in Bouman et al.(2001). The model assumes that the crop is well protected against diseases, pests and weeds, and consequently the model does not consider the yield reduction due to these factors. The model computes the rate of phenological development of rice on a daily time scale based on the daily average temperature and photoperiod. The dry matter at plant organs is computed considering the daily heat units. The detailed scientific description of dry matter production can be obtained from Bouman et al.(2001). The simulated total dry matter is partitioned by the model among various parts of the crop (roots, leaves, stems, and panicles) using partitioning factors, which are to be determined through calibration.

ORYZA2000 is programmed in Compaq Visual Fortran using the FORTRAN Simulation Environment(FSE) as developed by Ban Kraalingen(1995).A detailed explanation of the model and program code is given by Bouman et al.(2001).Below, we summarize the model for potential and nitrogen-limited production(Version2.11, April 2004).The model is freely available, complete with source code, full scientific description, supporting libraries and documents, user guidelines and a self-instructive training course, through internet(www.ORYZA2000.com or www.knowledge-bank.irri.org/oryza2000) or by request to the International Rice Research Institute(IRRI).

EXPERIMENTS

The Study Area

The proposed framework for optimal nitrogen scheduling under nitrogen balancing condition is applied on cultivate command area of Bangkha Chachoengsao, central of Thailand in Bangprakong river basin, which is the main river at the east area of Thailand. This area has effect from disaster every year (floating and drought).The overall area has high acid soil which may cause low productivity.

Parameter estimation of ORYZA2000

The ORYZA2000 model is calibrated using the data from field experiments conducted at Chachoengsao province, central of Thailand, during 2012-2013.The experiments are laid out in a split plot design with three replication of three difference nitrogen rate by growing medium duration rice variety. Nitrogen application considered for the experiment are (1) application of 0 kg/ha⁻¹ with RD31, RD41 (2) application of 180 kg/ha⁻¹ with RD31, RD41 and (3) application of 255 kg/ha⁻¹ with RD31, RD41. The experiments and crop period are presented in Table 1.

Table 1 Details of Nitrogen application experiments on Rice (*Oryza sativa*)

Location Bangkok Chachoengsao (13 °N 101 °E)

| Crop Transplanting | Experiment | | | | | |
|-------------------------------------|------------|------|-----------|------|-----------|------|
| | 0 kg/ha | | 180 kg/ha | | 255 kg/ha | |
| | RD31 | RD41 | RD31 | RD41 | RD31 | RD41 |
| Water dept(Cm) | 10 | 10 | 10 | 10 | 10 | 10 |
| Showing date | Jun | Jun | Jun | Jun | Jun | Jun |
| Transplanting date | Jul | Jul | Jul | Jul | Jul | Jul |
| Panicle initiation date | Aug | Aug | Aug | Aug | Aug | Aug |
| Flowering date | Sep | Sep | Sep | Sep | Sep | Sep |
| Maturity date | Oct | Oct | Oct | Oct | Oct | Oct |
| Duration(days) | 120 | 115 | 120 | 115 | 120 | 115 |
| Seedlings per hill | 1 | 1 | 1 | 1 | 1 | 1 |
| Plant pop. (hills m ⁻²) | 50 | 50 | 50 | 50 | 50 | 50 |
| Seasonal rainfall(mm) | 35 | 35 | 35 | 35 | 35 | 35 |

Remark: Jun=June, Jul=July, Aug=August, Sep=September, Oct=October

During the experiments, the dates of sowing, emergence transplanting, active tillering, panicle initiation, flowering and physiological maturity are recorded in each experimental plot. In order to determine the total crop biomass and leaf area index at different stages of crop growth, crop samples are collected at active tillering, panicle initiation, flowering, and maturity. At the time of harvest, yield components are measured in terms of total crop yield, weight of grains and the straw weight. During the period of experiment, the climatic parameters such as values of minimum and maximum temperature, relative humidity, sunshine hours, wind speed and rainfall on each day are recorded. The calibrated model is evaluated for its performance using the data corresponding to the nitrogen treatments of RD31 and RD41 variety from all three replication insert into *Oryza2000* model.

RESULTS AND DISCUSSIONS

The results of the simulations are presented in Table 2. According to Table 2, the simulated yields are better than the observed yields. Here, the observed yields are considered as the average yields for rice yield in this study area. Therefore, the nitrogen pattern that obtained from the proposed simulation-optimization framework is promising to give an optimum yield for rice crop in this study area. However, the results in Table 2 are only simulated results. In the future, the field experiments for rice crop with the nitrogen pattern, which is obtained from the proposed simulation-optimization framework, will be conducted. Then, the results from the field experiments will be compared with the simulated resulted.

Table 2 observed and simulated crop yield for calibration and validation for different seasonal and nitrogen schedule treatments experiments

| Crop Yield for calibration | Experiment (Treatment) | |
|---|------------------------|-------|
| | 180 kg/ha | |
| | RD31 | RD41 |
| Yield(Prior Experiment) Kg ha ⁻¹ | 4,646 | 4,316 |
| Yield(Simulated),Kg ha ⁻¹ | 5,323 | 4,688 |
| Error (%) | 12.72 | 7.94 |

Remark: 1 hectare = 6.25 rai

In addition, the plots of observed and simulated crop yield as well as biomass during the data used for validation of the model are presented in Figs.3 and Fig.4, respectively. Fig.3 is amount of Nitrogen (kg/ha) in a soil after genetic algorithm generate nitrogen schedule compare with total nitrogen of soil by original application. Fig.4 compares between dry weight of storage organs (Kg/ha) result of genetic generate nitrogen schedule pattern with original application Run2 is nitrogen application schedule generated from genetic algorithm more than Run3 is original application.

From the fore going discussions it is clear that the calibrated *Oryza2000* model is capable of simulating the nitrogen balancing condition of rice crop effectively, and can be used to develop nitrogen application management schedules.

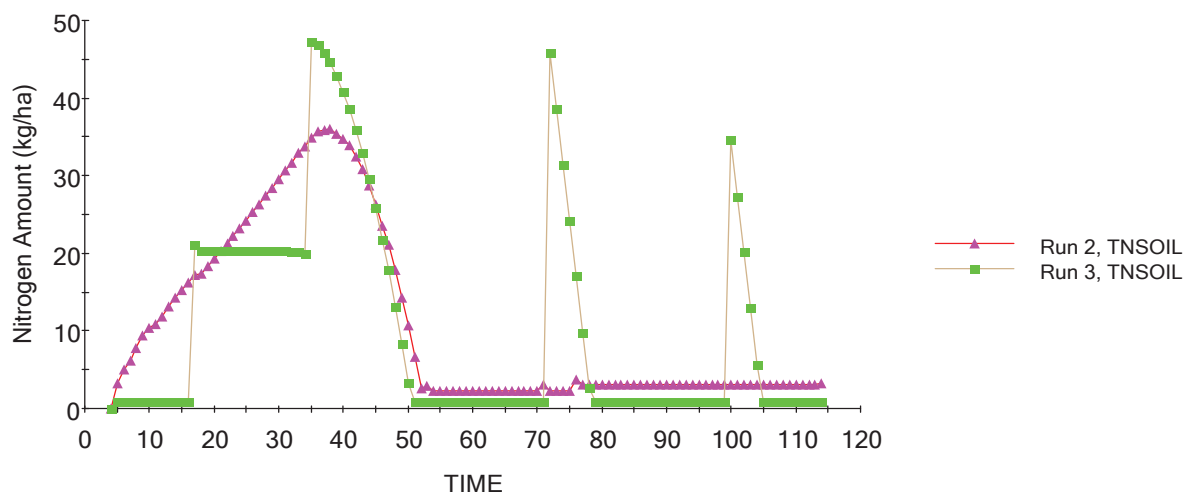


Fig.3.Amount of Nitrogen (kg/ha) between Genetic generate (Run 2, TNSOIL) and original application of observed (Run 3, TNSOIL)

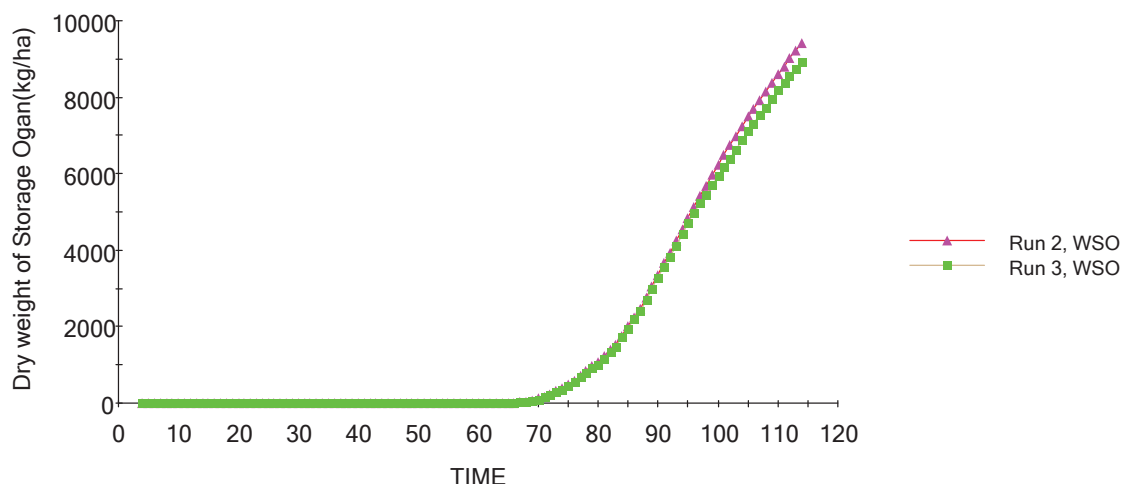


Fig.4. Dry weight of storage organs (Kg/ha) between Genetic generate (Run 2, TNSOIL) and original application of observed (Run 3, TNSOIL)

SUMMARY AND CONCLUSIONS

In the current study, a simulation-optimization framework is proposed to develop optimal nitrogen schedule for rice crop under nitrogen balance conditions. The framework utilizes a rice crop growth simulation model to identify the critical periods of growth that are highly sensitive to the reduction in final crop yield, and genetic algorithm based optimizer develops the pattern optimal nitrogen allocations during the crop growing period. The nitrogen allocation by the genetic optimizer is performed in such a way that the reduction in total crop yield is minimal during the crop. The model *Oryza2000*, which is employed as the crop growth simulation model, is calibrated and validated using field prior experimental data to corporation in the proposed frame work. The Framework it can be accuracy with more experimental also that waiting for testing of result with in real next experiment of paddy rice.

The proposed simulation-optimization framework is applied to develop optimal nitrogen schedules for Chachoengsao central part of Thailand. The effectiveness of the framework is compared with that of traditional nitrogen schedule plans. The result indicated that a no uniform distribution of nitrogen uptake during the growing period of the crop, imposed by the proposed framework, is able to increase crop yield. The major advantage of the proposed model is that it eliminates the limitation of triggering nitrogen remaining levels of soil, which is followed in the traditional methods. The model also eliminates the subjective decisions about the splitting of nitrogen requirement between different growth stages based on their sensitivity to top yield. Overall, the results of the study suggest that by employing a calibrated crop growth model combined with an optimization algorithm can lead to achieve maximum nitrogen use efficiency.

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The Safety and Behavior of the Machinery Practical Training Factories in Campus

Lee Win Chin*¹, Huang Cheng Hung*¹, Chih Fu Wu*¹, Yi Jung Lee*²

*¹Tatung University, Taiwan, *²National Chiao Tung University, Taiwan

0554

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Abstract

This study is about a survey on the safety and behavior of the practical training factories in colleges, and the study object is a practical training factory in a technical college in Taiwan, separately based on the college department like mechanical engineering, automatic engineering and industrial management. We used statistics analysis software SPSS to sampling analysis, and the general safety investigation is including students' study attitude, teachers' teaching behavior, the degree of safety aware of teachers and the safety of environment facilities, and which is to provide the ways to improve the safety management of practical training factories in technical colleges.

1. Preface

1.1 Background and motivation of the study

Training factories are the indispensably occasion in colleges or universities, particular in the departments of mechanical engineering, industrial of management, automation engineering and industrial design etc. The course, factory training, is one of the most important subject. We can develop new device or equipment through operating machines and keeping practicing. However, most of machines in factories are dangerous such as lathes, milling machines, drilling machines and electric welding

machines etc. For students and teachers, the most important is that “How to operating machines safely during learning?” Everyone should achieve safe operation, professional ethics and eco-friendly request.

1.2 Research motivation

The priority of the safety in training factories is to manage related machinery, equipments, environment and operating system which are dependent on education. Under great teachers and much resource, college is just a good occasion to instill occupational safety into students. Looking forward to create the safer learning environment in cooperation with government’s policy is my main motivation.

2. Related work

Recently, many contingencies occurred in schools. It seems that there must be something need to improve and modify for safety and health in schools. On 13th May, 2013, it happened an industrial accident in the department of chemistry in National Chung Hsing University. While two students were doing the experiment “recrystallization”. The cylinder exploding was caused by adding too much reactant. The slice of glass even hurt the eye of one students which he would almost lose his sight.

The first step for great technical personnel is to work and do research safely. Once you lose your life, you lose any possibilities. According to the estimation of enterprises, accidents distribute like 2% for natural disasters and 98 % for artificial reasons. Furthermore, 88% can separated for two parts, 88% caused by unsafe behavior and 10% caused by under the unsafe condition(Wang Xian Zhang, 1997). Once people are absent-minded, accidents happen. Therefore, we definitely can’t ignore the management of safety in training factories.

3. Method

3.1 Questionnaire survey

1. Collect related data

(1) Collect data related to safety management of training factories

(2) Take one university of technology for example. Do a questionnaire to students using training factories.

2. This study takes “Safety of training factories and behavior questionnaire survey” as research tool. The detail is as following:

(1) Personal information:

This part includes sex, department (day school or night school), number of classes of students.

(2) Current condition of safety management of training factories:

- A. How's the study attitude of students?
- B. How's the teaching behavior of teachers?
- C. How's the cognition and behavior of safety?
- D. What's the degree of safety aware of teachers?

3. This study concerned the answer ability of students.

This research adopted "Likert scale". The format of typical five-level Likert item, for example, could be: 1 always, 2 usually, 3 sometimes, 4 seldom 5 never.

4. Pretest sample number

The subject of pretest and formal test were same that they were all college students.

3.2 Process of questionnaire survey

The survey adopted the method by going to the class directly to do the questionnaire survey, and then collected to do statistics analysis.

1. Differentiate personal information by department, sex, day/night school.
2. Select the 20 classes which are representative and using training factories to do questionnaire survey.
3. Collect questionnaires.

4. Results

4.1 Collect data and do analysis

This study adopted the method of going to the related classes to do questionnaire survey and collected after completing the survey. Choose representative classes of department of mechanical engineering, automotive engineering and industrial engineering and management as subject. All these students were using training factories. Pretest questionnaire amounted to 170 from 10th September, 2011 to 24th September, 2011. Delete improper 10 questionnaires, so here we got 160 proper questionnaires which confidence interval is approximately 95 %. We used statistics analysis software SPSS to sampling analysis. Get the critical ratio (CR value) for each item. Then we defined subject who get the CR value between 25% to 33% as "high score group", 67%-75% as "low score group". Then we did the significance test. If the CR value get to the large significance which α is smaller than 0.05 or α is smaller than 0.01, it indicates that this item(question) can differentiate the reaction degree of different students. Therefore, we regarded significance as the standard of whether deleting questions or not.

4.2 Investigation of current distribution

The investigation was passed through reliability test that deleting questions from 40 items to 26 items. We used statistics analysis software SPSS to sampling analysis. The number of formal questionnaires was amounted to 750 from 1st October, 2011 to 30th November, 2011. Cancelling 35 improper questionnaires, there was still 715 questionnaires which the confidence interval is approximately 95 %.

4.3 Factor analysis of management of training factories

The questions remained 26 items after the reliability test. We used KMO (Kaiser-Meyer-Olkin) and Barlett's to check if these 26 items are suitable for doing factor analysis. When KMO value of the item is lower than 0.5, the item is not appropriate for factor analysis. We got 0.704 for KMO value which indicates is suitable for doing factor analysis. Furthermore, the χ^2 value of Bartlett's test of

sphericity is 3112.912 (degree of freedom is 325) with great significance which means it's suitable to do factor analysis and there exists co-factors between related matrix of items.

Table 1 Table of KMO and Bartlett's test (

| | |
|---|----------|
| Kaiser-Meyer-Olkin measure of sampling adequacy | 0.704 |
| χ^2 value of Bartlett's test of sphericity | 3112.912 |
| Degree of freedom | 325 |
| Significance | 0.000*** |

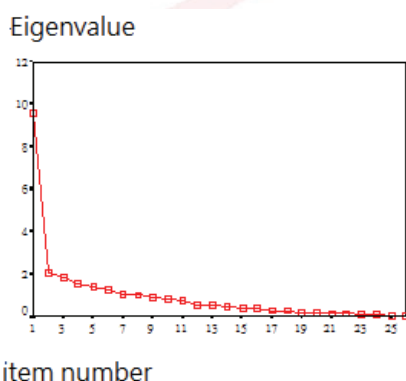


Figure 1 Factor Scree Plot (the first factor analysis)

We used principal component analysis to do factor analysis extraction. To make the difference of factor loading of co-factors to be in the largest range, we adopted "varimax" to turn the axis to simplify the factor structure. Process analysis is as followings:

This research decided the number of remaining factors by scree test. We can know the number of factor we can extract by Scree plot (figure1). The curve decreased dramatically after number8, and turned smooth gradually. Therefore, we kept 8 factors.

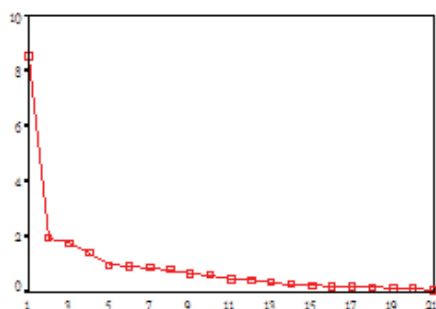
At the first factor analysis, there were eight factors which eigenvalue are larger than 1. However, the fifth factors were only A22 and A18, the sixth factor was only A27, the seventh factor was only A1 and the eighth was only A6. Therefore, it was more appropriate to delete from the fifth factor to the eighth factor. It was a exploring factor analysis, so deleting would change the factor structure at the same time. We needed to do factor analysis again to prove the construct validity of the scale. After sifting the data out, there were 21 items (excluding A22.A18.A27.A1.A6) for the second factor analysis.

The process of the first factor analysis and the second factor analysis were the same. The only difference was that we only choose 21 items for the second factor analysis (excluding A22. A18. A27. A1. A6). After we ensured 21 items, we used KMO and Bartlett's to check whether these 21 variables were suitable for doing factor analysis. We got KMO value for 0.750, which means suitable for factor analysis. Moreover, χ^2 value of Bartlett's test of sphericity is 2365.106 (degree of freedom is 210) with great significance, which means it's suitable to do factor analysis and there exists co-factors between related matrix of items.

Table 2 Table of KMO and Bartlett's test

| | |
|---|----------|
| Kaiser-Meyer-Olkin measure of sampling adequacy | 0.750 |
| χ^2 value of Bartlett's test of sphericity | 2365.106 |
| Degree of freedom | 210 |
| Significance | 0.000*** |

Eigenvalue



Item number

Figure 2 Factor Scree Plot (the second factor analysis)

We could see that the slope gets smaller after the fourth factor. Thus, it was more suitable to choose for 3 to 4 factors.

Table 3 The factor analysis of safety management of training factories (excerpt 1)

| Item | Contents | Explained variation | Cumulative variation | Factors of components | | | | |
|------|---|---------------------|----------------------|-----------------------|----------|----------|----------|----------------|
| | | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Intercommunity |
| 12 | Without approval of teachers, I don't use dangerous mechanics. | 20.003 % | 20.003 % | 0.8493 | 0.1845 | 0.1139 | 0.1449 | 0.7893 |
| 36 | The training factories make regulations by the safety law of the government. | | | 0.7225 | 0.3089 | | | 0.6245 |
| 8 | When finding any wrong with equipments, I will ask for help immediately. | | | 0.7161 | | 0.1034 | 0.3614 | 0.6615 |
| 35 | The electronic devices in training factories have ground connection. | | | 0.6835 | 0.4798 | | | 0.7074 |
| 33 | There are emergency lights in training factories. | | | 0.6128 | 0.3566 | 0.2507 | 0.2273 | 0.6174 |
| 3 | When using dangerous equipment, I follow by what teachers taught. | | | 0.5987 | -0.2115 | 0.2398 | 0.1601 | 0.4864 |
| 34 | There are enough and proper protective equipment. | | | 0.5514 | 0.2950 | 0.5503 | | 0.7009 |
| 14 | Teachers will request students that students need approval before using dangerous machines. | | | 0.4828 | 0.4713 | 0.2199 | 0.2652 | 0.5741 |

There are 7 items which factor loading are above 0.5. This means this section puts much emphasis on teaching behavior and regulation of labor safety which we named “Teaching behavior”.

Table 4 The factor analysis of safety management of training factories (excerpt 2)

| Item | content | Explained variation | Cumulative variation | Factors of components | | | | |
|------|--|---------------------|----------------------|-----------------------|----------|----------|----------|----------------|
| | | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Intercommunity |
| 28 | Before class starting, I understand positions of main power switches. | 19.263% | 39.266% | | 0.7764 | 0.1736 | | 0.6430 |
| 39 | The disaster of recovery plan and the route chart are all setting up for the training factories. | | | 0.2413 | 0.7478 | | 0.3693 | 0.7588 |
| 31 | It is adequately ventilated in the training factories. | | | 0.3314 | 0.6728 | 0.1275 | 0.3396 | 0.6942 |
| 11 | I will notice the position of emergency entrance. | | | 0.3965 | 0.6571 | 0.2453 | 0.1072 | 0.6608 |
| 29 | I will notice the position of the first-aid box. | | | 0.2920 | 0.6540 | 0.3272 | 0.1839 | 0.6540 |
| 13 | Before class, teachers organize students into groups and do the assignment. | | | 0.2482 | 0.5097 | | 0.3603 | 0.4539 |

There are 6 items which factor loading are larger than 0.5. This means that the section focuses on learning attitude and self-request which we called “the learning attitude and behavior”.

Table 5 The factor analysis of safety management of training factories (excerpt 3)

| Item | Components | Explained variation | Cumulative variation | Factors of components | | | | |
|------|--|---------------------|----------------------|-----------------------|----------|----------|----------|----------------|
| | | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Intercommunity |
| 23 | Even though after class, I keep working for my project until finishing. | 13.762 % | 53.028 % | 0.1027 | -0.1359 | 0.8337 | 0.1675 | 0.7522 |
| 15 | I clearly understand the position and using method of the protective equipment such as fire extinguishers. | | | 0.2145 | 0.1932 | 0.6919 | 0.2898 | 0.6462 |
| 4 | When using dangerous machines, I use protective equipment to keep away from danger. | | | | 0.2399 | 0.6814 | | 0.5293 |
| 37 | The staff in the factories is familiar with using fire extinguishers. | | | | 0.4430 | 0.6227 | | 0.5905 |

There are 4 items which factor loading are above 0.5. It indicates that this section focus on the safety of students and the protective equipment using which we called “the cognitive behavior of students”

Table 6 The factor analysis of safety management of training factories (excerpt 4)

| Item | Components | Explained variation | Cumulative variation | Factor of components | | | | |
|------|--|---------------------|----------------------|----------------------|----------|----------|----------|----------------|
| | | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Intercommunity |
| 10 | Teachers teach and remind students of noticing safety during training class. | 12.000 % | 65.028 % | 0.2345 | 0.1706 | | 0.8212 | 0.7614 |
| 7 | Teachers check the machines before operating. | | | | 0.3466 | 0.3201 | 0.7117 | 0.7292 |
| 9 | Teachers request students that they should not bring anything unrelated. | | | 0.3188 | | 0.1791 | 0.6946 | 0.6199 |

There are 3 items which factor loading are larger than 0.5. This section focuses on teachers' reminding of safety and behavior of request. Thus, we named as "behavior of safety reminding of teachers".

Next, do validity analysis to get further information such as reliability and validity. After the factor analysis, we got four sections. Then, we did the reliability test for four sections and reliability analysis for total scale.

Table 7 The scale of validity analysis

| Scale | Cronbach's Alpha value | The number of items |
|--|------------------------|---------------------|
| the learning attitude and behavior | 0.8898 | 8 |
| teaching behavior | 0.8590 | 6 |
| the cognitive behavior of students | 0.7619 | 4 |
| behavior of safety reminding of teachers | 0.7525 | 3 |
| total scale | 0.9201 | 21 |

The scale of validity analysis shows that the Alpha value are 0.8898, 0.8590, 0.7619, 0.7525 respectively that 4 values are larger than 0.70. The alpha value of total scale is 0.9201 which means the validity is good.

5. Conclusion and suggestion

5.1 The investigation of safety management in training factories

In 20th December 1993, the council of labor affairs legislated for the law of Labor Safety and Health Act Article 4, paragraph 15 and the second paragraph applies to laboratory, and training factories in schools. The main goal is to keep away from unsafe factors.

5.2 Conclusion for factor analysis

1. After first factor analysis, we got 4 sections. There are 8 factors which eigenvalue are larger than 1. However, the fifth factors were only A22 and A18, the sixth factor was only A27, the seventh factor was only A1 and the eighth was only A6. Therefore, it was more appropriate to delete from the fifth factor to the eighth factor. It was a exploring factor analysis, so deleting would change the factor structure at the same time. We needed to do factor analysis again to prove the construct validity of the scale. After sifting the data out, there were 21 items (excluding A22.A18.A27.A1.A6) for the second factor analysis.

The scale of validity analysis shows that the Alpha value are 0.8898, 0.8590, 0.7619, 0.7525 respectively that 4 values are larger than 0.70. The alpha value of total scale is 0.9201 which means the validity is good.

5.3 Cognition of safety and suggestion

1. School takes attach importance to safety and health (It shows at table 8).

Table 8 The degree of focusing on safety and health

| degree | percentage(%) |
|-----------|---------------|
| very much | 85 |
| ordinary | 12 |
| little | 3 |

2. The participating condition of subjects shows at table 9.

Table 9 The participating condition of subjects

| degree | percentage(%) |
|------------------|---------------|
| enthusiastic | 70 |
| Ordinary | 27 |
| non-enthusiastic | 3 |

3. As for the cognitive behavior of students, students in the department of industrial of management realize and put in practice much better than students in the departments of mechanical engineering and automation engineering do. Particularly, female students in department of industrial of management pay more attention on teachers' awareness than male students. The reason is that most of female students have mechanical background for their families. Thus, they care more about the safety of using machines. I suggest that teachers in the departments of mechanical engineering and automation engineering should improve and attach more important on their safety of management.

4. As for the teaching behavior and learning attitude and behavior, the students in the department of mechanical engineering have better performance than the students in the departments of automation engineering and industrial of management do. Thus, I suggest that these two departments need to put more emphasis on teaching how to safely use machines.

5. The propaganda of safety in schools needs to be improved a lot.

6. Teachers are not familiar with the backgrounds and abilities of labor of health and safety managers (HSE managers). I suggestion that there should be more connection between teachers and HSE managers.

7. As for safe equipment in training factories, there is still large space to improve. It should improve and increase the safe equipment in factories.

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Job Resources and Job Performance of Universitas Terbuka's Lectures

Yudith Alexanderina Frans

Universitas Terbuka, Indonesia

0592

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Abstract

Institutional supports to lecturers play a very important role in increasing job performance. These supports include the availability of job resources (supervisor support, peer support, working atmosphere, and lecturer autonomy in completing tasks and making decisions). This article discusses relationship and the influence between the job resources and job performance of lecturers at Universitas Terbuka. A survey was conducted among lecturers in Universitas Terbuka. The results show that job resources have no significant relationship with the job performance.

Keywords: job resources, job performance

Introduction

Every organization both government and private have vision and missions. To achieve the vision and missions firstly, the goals of the organization should be achieved. The goals of organization stipulated in some of activities plans must be conducted by organization, the units in organization, also by an individual in organization. The accomplishment of organizational goals can be viewed from the performance of each employee.

According to Simanjuntak (2005:3), "the three main factors that influence the performance of the company are the organizational supports, management capability, and the performance of each person in the company". He also implies, "individual's performance is affected by many factors which can be classified in three groups, i.e individual's competence, organizational supports, and management supports". Organizational and management support to every staff also holds a very important role in improving the employees' performance. Organization's supports include work design and organizational context. (Walker, 1992).

Bakker dan Demerouti (2007:312-313) mentioned that:

Job resources may be located at the level of the organization at large (e.g. pay, career opportunities, job security), the interpersonal and social relations (e.g. supervisor and co-worker support, team climate), the organization of work (e.g. role clarity, participation in decision making), and at the level of the task (e.g. skill variety, task identity, task significance, autonomy, performance feedback)

The availability of job resources either in the form of physical facility, compensation, the easiness in the work, supervisor and co-workers' supports, the convenience working environment, and conducive working climate are assumed to have a strong relationship and affected staffs' job performances.

The Study conducted by Bakker et. al. (2003) showed that the effects of job resources in improving the employees' professionalism are very powerful if employees have less workload and less work demands. In another study, Demerouti et al. (2001) state that the lack of job resources supports (such as giving feedback to employees' performance, giving working supervise, and giving chances for employees to participate in institutional' decision-making) will affect the employee organizational sense of belonging and work.

Job resources have important meaning for workers as a driving force to motivate them to achieve organizational goals. According to Bakker *et al.* (2003) "Job resources have motivational potential, therefore the lack of such resources will have detrimental effects on workers' motivation and performance, eventually leading to disengagement from work and reduce of professional efficacy". In other research, Bakker *et al.* (2003) stated, "Poor or lacking job resources preclude actual goal accomplishment, which is likely to cause failure and frustration. In its turn, this may lead to withdrawal from work, and reduced motivation or commitment. When the external environment lacks of resources, and individual cannot reduce the potentially negative influence of high job demands, they cannot achieve their work goals".

Schaufeli and Arnold (2004) mentioned, Job resources may play either as an intrinsic motivational role or as extrinsic motivational role. As an intrinsic motivational role, they foster employees' growth, learning and development. As an extrinsic motivational role, they are instrumental in achieving work goals". Bakker, Demerouti dan Verbeke (2004) state, "when employees notice that they have resources available and are not presently overwhelmed by job demands, they, in exchange for those resources, tend to engage in pro-organizational actions. Organizational resources include job control, potential for qualification, participation in decision making', and task variety. Social resources refer to support from colleagues, family, and peer groups". (Demerouti *et al*, 2001).



The Job Demands-Resources Model of Burnout

Source: Bakker *et al*. *A Multigroup Analysis of the Job Demands-Resources Model in Four Home Care Organizations*. 2003. *International Journal of Stress Management*. Vol.10, No.1, p.16

Dessler (2006) stated, "Performance management is a process of consolidating the goal setting and the performance appraisal and development into a single shared system, which aims to ensure that the employee's performance will support the company's strategic objectives. Also Earlier, Dessler (2000) stated, "Performance appraisal is defined as evaluating an employee's current or past performance relative to his or her performance standards". Many factors influence the employees' performance. According to Mondy (2008) "The aspects that influence a person's performance include traits (attitude, appearance, and initiative), behaviour, competencies, and goal achievement". Walker (1992) mentioned that "certain variables which influence performance are controlled by management: work design (the tasks or activities to be performed, job content), organizational context (e.g., supervisory style, organization of the work, physical working condition, commutation, hours of work, etc.), and performance objectives (presumably related to organizational objectives)". Walker also stated, "performance is a function of both effort and abilities and will results in outcomes-productivity for the organizational and personal rewards in the form of pay, benefits, job security, recognition from coworkers and superiors, and promotional opportunities for individual employees" (Walker, 2000)

Performance produced by the employees will become an input for the management in making decisions related to human resources. The purposes of performance

assessment in general are to reward past performance and to motivate future performance improvement (Gomes, 2003).

Methodology

This study aimed to get a picture of the relationship and the influence of job resources to UT lecturer's job performance. Simple random sampling used to gain the data. A pilot survey conducted to test the validity of questionnaire items. Thirty-two UT's lecturers took part in the pilot study. They were asking to evaluate the instruments individually. Based on their information, some questions are simplified to avoid confusion while filling in the questionnaire. Sample size in this study was 53. Pearson' Correlation was used to test the hypothesis.

Results of the Study

Employees' and institutional internal factors will influence employees' job performance. For these assumptions, the higher the knowledge, skills, competence, physical condition, psychological condition, superiors and co-workers support, organizational culture and climate, the higher the human resources performance. The Cross tabulation analysis (crosstabs), Pearson Correlation, and somers'd used to determine the effect, the contribution and the degree of relationship between the job of resources and job performance.

A combination factors of job resources, both internal and external organizational environment factors, and other factors derived from employees themselves can produce job performance. The supports of each environment, internal or external, and all of the skills, knowledge, ability, attitude, physical condition, working experiences, as well as psychological factors derived from employee can encourage the creation of employees' working behavior. Positive working habits can boost employee' performance and ultimately achieve individual and organizational goals. Otherwise, negative working habits make employee's performance lower.

UT's Lecturers Perceptions about UT's Job Resources Support

a. Supervisor Supports

The institution or organization's supervisor always faced two main orientations, the orientation of the given tasks and orientations in employees (Heidjrachman, 2000). Supervisor' supports are: giving the widest possible opportunity for employees to enhance their capabilities and skills through education and training or through promotion or special assignments; providing working guide and instructions; giving attention to employees' work results; establish effective cooperation, creating an effective working systems and harmonious and convenience working environment; also giving rewards and attention to employees' career development.

UT's overall Supervisor' supports which includes: supervisor attention to the employees' work results, supervisor given trust, co-operation between supervisor and

employees, supervisor' rewards, and supervisor attention to employees career development can be seen in Figure 1.

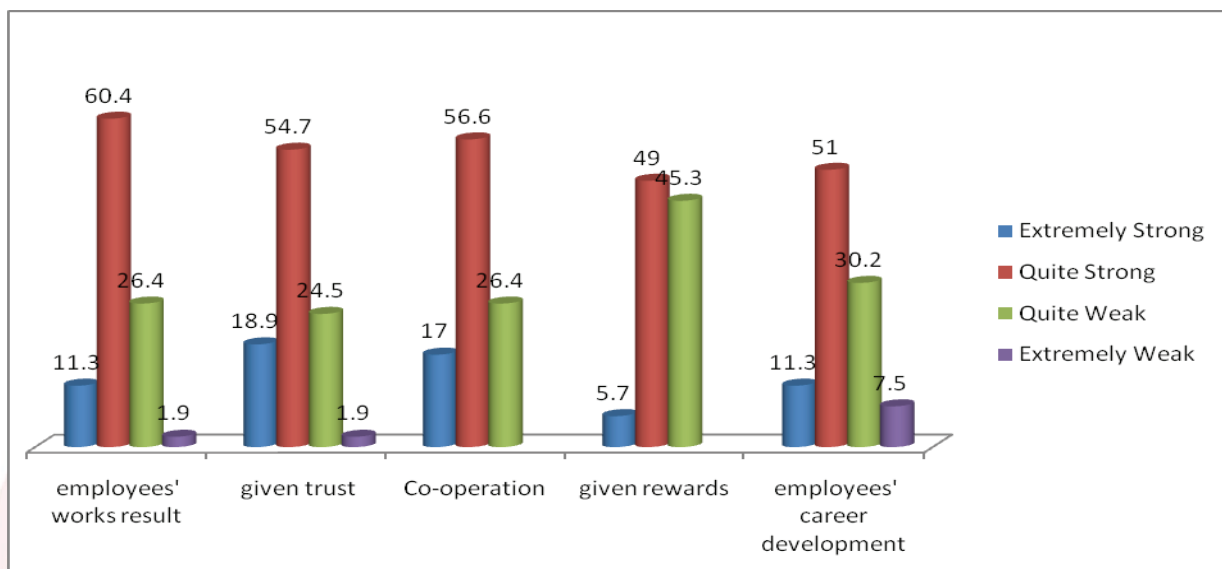


Figure 1. UT Lecturers' Perception of UT's Supervisor Supports

From figure 1, it can be seen that more than 49% of respondents said that UT's supervisors' supports for UT's lecturers are quite strong.

b. Colleagues Supports, Teamworks, and Working Environment Supports

Employees' job performance is strongly influenced by their satisfaction with their job. The higher the job satisfaction, the higher the performance, on the contrary, the lower the job satisfaction the lower the employees' performance is. The working conditions and the support from colleagues will influence job satisfaction. A harmonious working relationship between co-workers indirectly will encourage performance improvements. Each employee would tend to pay attention and give supports to their colleague if they have harmonious relationships.

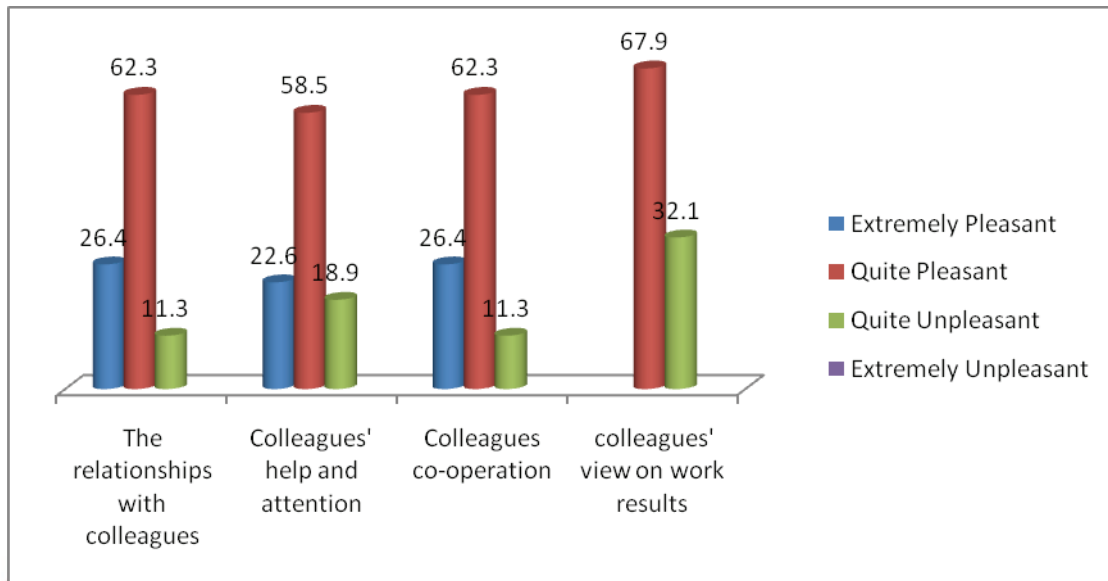


Figure 2. Colleagues' Supports and Team Works

More than 60% of respondents state that colleagues' support and team works at UT are pleasant. (Figure 2)

Workplace conditions, working environment and working atmosphere that can increase access, convenience, and flexibility of employees are also expected to increase employees' productivity so that its performance is also increasing. Every employee will feel comfortable and secure in a harmonious working environment.

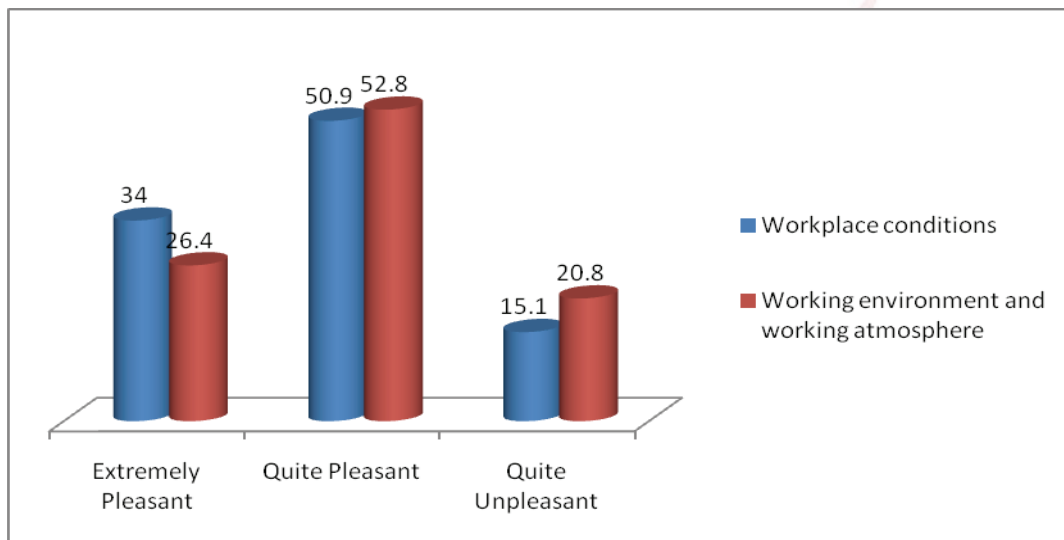


Figure 3. Working Environment

Figure 3 shows that more than 50% of respondents say that UT's working environment is quite pleasant.

c. Autonomy

The autonomy aspects consist of the responsibility and given trust from the institution. The UT Lecturers' autonomy in taking action and decision for completing tasks assigned can encourage the employees for looking the best ways to complete the tasks assigned effectively and efficiently.

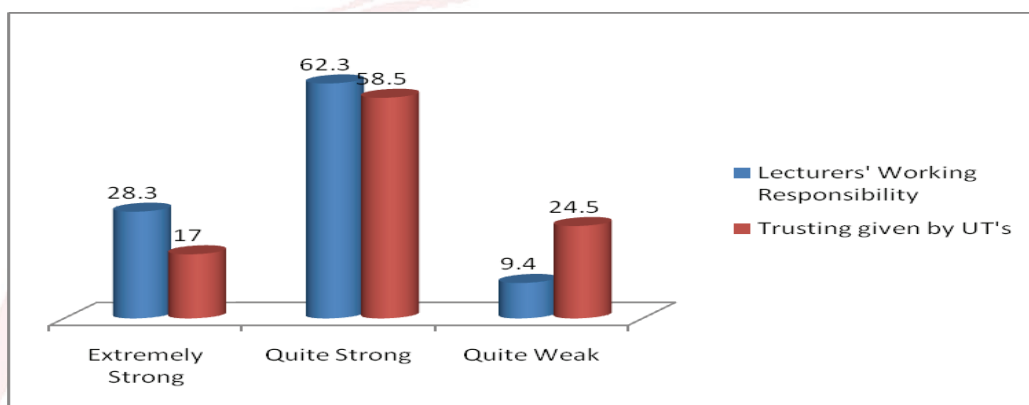


Figure 4. Lecturers Working Responsibility and Trusting Given by UT's

The greater the responsibility and trust given to the employees will cause psychological impact on employees themselves that they are important for institution or organization. The responsibility and trust given by UT will increase the quality of work. Figure 4 shows that more than 50% of respondents say that lecturers working responsibility and trust given from UT to lecturers are quite strong.

UT's Lecturers Job Performance

The performance value of UT's lecturer's is based on the performance appraisal from faculty leaders. The performance value was set from 25 (low) to 36 (high). To simplify the process of data analysis, the performance values are divided into three levels, i.e., low (25-28), medium (29-32), and high (33-36). Based on the data obtained, 81% of the respondents get high job performance value. Figure 5 gives an overview of UT's lecturers' job performance value.

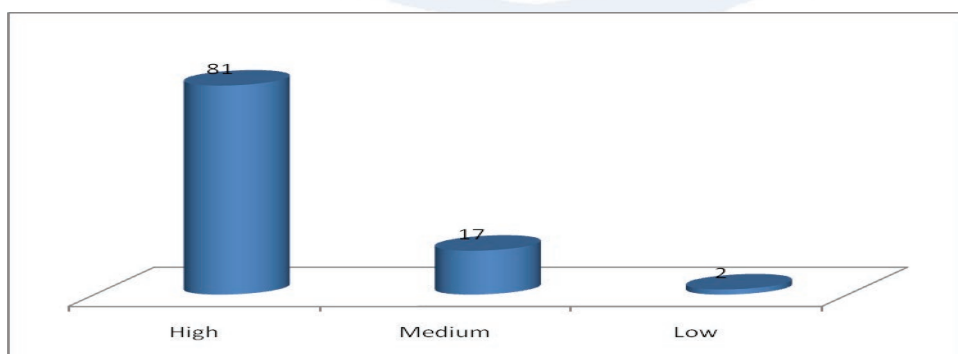


Figure 5. UT's Lecturers' Job Performance Appraisal

Relationship between Job Resources and Job Performance

Job performance is the result of a combination of factors of job resources, whether it is institutional internal or external environmental factors, or factors derived from lecturers' themselves. The support from environment, either internal or external, and all of the lecturers' skills, knowledge, ability, talents, physical condition, working experiences, as well as psychological factors are derived from the lecturers can encourage the creation of employees behavior. Positive Working habits can boost employees' performance. Therefore at the end they will reach individual and institutional goals or increasing the organizations performance. On the contrary, negative working habits will lower the employee's performance.

Table 1 Job Resources * Job Performance Crosstabulation

| | | Job Performance | | | Total |
|---------------|---------|-----------------|---------|------|-------|
| | | Low | Average | High | |
| Job Resources | Average | 1 | 5 | 12 | 18 |
| | High | 0 | 4 | 31 | 35 |
| Total | | 1 | 9 | 43 | 53 |

Table 1 shows that there is a tendency for lecturers with high job resources supports will also have high job performance as well. To strengthen these results Pearson Correlation test was used.

Hypothesis:

There is a significant relationship between job resources and job performance

Table 2 Job Resources * Job Performance Correlations

| | | Job Resources | Job Performance |
|-----------------|---------------------|---------------|-----------------|
| Job Resources | Pearson Correlation | 1 | .253 |
| | Sig. (2-tailed) | | .068 |
| | N | 53 | 53 |
| Job Performance | Pearson Correlation | .253 | 1 |
| | Sig. (2-tailed) | .068 | |
| | N | 53 | 53 |

The correlation value between job resources and job performance is 0.253 with probability significance 0.068. If probability value is lower than 0.05, we can say that the correlation between job resources and job performance is significant, the

hypothesis is accepted. Otherwise, if probability value is higher than 0.05 the hypothesis is rejected. The results as shown in Table 2 means there is no significant relationship between job resources and job performance, therefore the hypothesis is rejected.

Insignificant this relationship may come from the great supports from UT. This creates a safety sense or comfort feeling within lecturers without realizing whether they achieve their performance targets or not.

Insignificant relationship between job resources and job performance may also because UT's lecturers never receive feedback from their superior or supervisor on their performance. The UT's employees will try to do their best to achieve the organizational standard performance if they know about their assessment performance. In this case, if they get low performance's value last month than they will make many efforts to increase their job performance and productivity. Otherwise, if performance's target is higher than last month's assessment, then the employee will keep trying to maintain their performance so its value does not decrease.

Other assumption that may cause insignificant relationship between job resources and job performance is the high demands towards the lecturers. In this case, job resources and job supports cannot reduce the negative effects of high job demands. In the situation where work demands are low, employees will have enough time to think of the best way to accomplish the task assigned to them and learn from feedback from supervisor.

Conclusion

Job resources may have insignificant relationship with job performance if there is no performance feedback from superior or leader. Without feedback, lecturers or employee cannot analyze whether they do their best or not. On the other hand, the high job resources and the high job supports cannot reduce the negative effects of high job demands. Concerning high working demands, employees or lecturers will try to accomplish their task on time but without optimal quality.

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Multi-track Diplomacy in China-Sudan Energy Relations

Serafettin Yilmaz

National Chengchi University, Taiwan

0610

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Abstract

In January 2011, South Sudan voted overwhelmingly in a referendum for independence and the partition of Sudan took place in July 2011. The post-split environment did not bring the anticipated rapprochement as the sides failed to agree on a number of outstanding territorial disputes. On the surface, the disputes are centered on the oil fields across the border upon which both sides claim sovereignty and the issue of transporting the extracted oil through the pipeline to the port in the North for export. However, the causal relationship between economic interests and deeper sociocultural and religious enmities is obvious. It follows that, China, the largest investor in Sudan's energy sector, has a unique challenge to engage both sides and protect its energy interest. It is believed that traditional approach toward Sudan fails to address the question Sudan-South Sudan dispute. Rather, China needs to develop a multi-track diplomatic engagement in both Sudans. This study examines the impact of the partition of Sudan on China's energy security in the North and South Sudan. More specifically, it empirically focuses on the question of how Beijing could manage a multi-track diplomacy to bring the two sides together and what leverages it may have on both governments to be able to execute such a policy. Applying multi-track diplomacy model to the ongoing crisis, this paper aims to discuss the strategies Beijing may take as the North and the South negotiate over their disagreements so that a functioning China-Sudan-South Sudan trilateral relationship would be established and maintained.

Introduction

China's need for oil has grown considerably over the past two decades. However, the country's indigenous capacity to provide oil and natural gas has fallen short in the face of increasing civilian and industrial demand. China became a net energy importer in 1993 and the dependence on foreign oil has increased ever since. In order to respond to the looming threat of an economic slowdown due to lack of adequate oil, Beijing devised a go abroad policy in the early 2000s.¹

As part of its quest for oil, China became involved in Sudan starting from the 1990s. The US-led sanctions have offered a relatively easier access for Chinese national oil companies (NOCs) to fill up the vacuum left by their Western counterparts. Furthermore devoid of international support and investment, Sudan had few options other than welcoming Chinese investment.

In 2012, the deep socio-economic divisions in Sudan led to the partition of the country into a north and south. China, a firm supporter of Khartoum, abstained from taking sides in the beginning of the dispute although it maintained close relations with the central government. However, after the South voted in a referendum for independence, Beijing recognized the new state and established diplomatic relations with the South Sudan.

However, independence has not brought the anticipated peace as disputes over oil fields and border demarcation remained unsolved. It follows that currently the South Sudan has over 70% of all proven oil fields whereas Sudan has the infrastructure to transport and export the extracted oil. Also, the largest oil fields are located near the border areas contested by both sides.

This paper offers an investigation into China's energy policy in the post-split Sudan. It provides an analysis of the Sudan-South Sudan relations and argues that Beijing needs to utilize a multi-track diplomacy to protect its energy interests in post-partition Sudan since traditional (track-one and track-two) diplomacy does not fully address the complexity of the conflict. On the other hand, as a systems-based approach to modern interstate relations, multi-track diplomacy may assist China to help the two countries overcome existing disputes and thereby secure its energy interests.

It is observed that the dispute between the North and South Sudan is a complex phenomenon. Deep social, political and cultural disagreements also contribute to the current problems. Consequently, traditional methods fail to provide a satisfactory solution to the historical distrust and hostility. For example, although major breakthroughs were achieved with the signing of the Comprehensive Peace Agreement (CPA) between Khartoum and the southern rebels in 2005, efforts made by various governments and international organizations have so far failed to stop clashes across the border areas, let alone solve deep cultural, religious and racial disputes.

¹ See "Fueling the Dragon: China's Investment in the Global Oil and Gas Market," Ernst and Young Global Oil and Gas Center, 2011.

Through its multileveled approach to intra and interstate conflicts and civil unrests, multi-track diplomacy assists international and regional actors by offering various tracks to deal with the many aspects of social relations. The nine categories that compose multi-track diplomacy bring together both state and non-state actors, communities and organizations around a broad web of activities functioning as a unified system. Hence, in this study, China's energy policy toward the post-partition Sudan is studied within the framework of multi-track diplomacy. The primary thesis is that in order to protect its energy interests, Beijing should approach the Sudan-South Sudan dispute through a multi-levelled framework because the conflict between the two countries is comprehensive, deeply-seated and multi-dimensional.

It must be emphasized that the systems approach does not seek a one-size fits all solution, nor does it deny the importance of traditional diplomacy in addressing conflict situations. In fact, its effectiveness rests on flexibility as it offers tools for conflict transformation depending on the situation by involving a variety of actors that range from diplomatic to business-related and civilian.

Multi-Track Approach to Peace-Building

Foreign policy is carried out through diplomatic, military and economic instruments utilized singularly or in varying combinations. The success of foreign policy depends on the ability of decision makers to apply the right tools to real life situations. In order to be able to read the developments correctly, strategists need to look at them critically and in a holistic manner (Cuthbert, 2005).

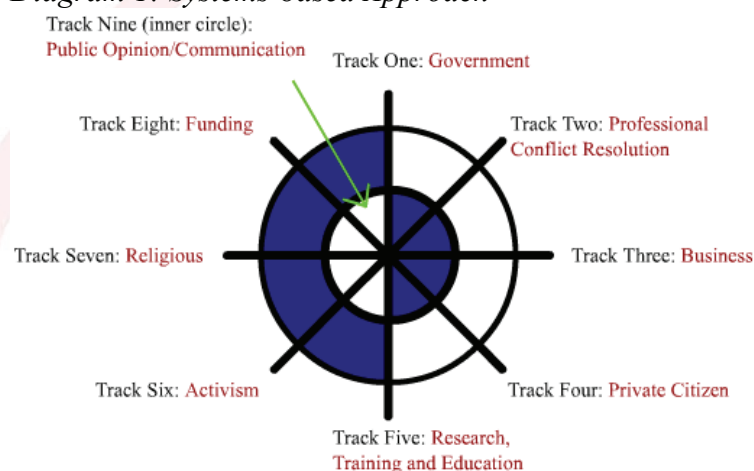
Classical diplomacy is seen to be linear and based on the rationalist discourse. The aim is to enable conflict resolution and assist peace through state-led action. However, it suffers from limitations because of its reductionist and reactive nature. Thus, in response to these shortcomings, a pro-active method has been offered. Distancing itself from a strictly state-centric approach, the new model bases peacemaking strategies on civil and societal norms. Using appropriate tools, actors from individual, local, regional, national and international levels make a cohesive network for proactive diplomacy and conflict resolution and transformation (Kumar, 1995).

To this end, the first attempt was made in the early 90s by Joseph Montville who coined the term "track-two diplomacy" which brought non-state actors into diplomatic action (Diamond and McDonald, 1996). However, it was later understood that putting everything under track-two did not explain the "complexity and breadth" of informal diplomacy. In an attempt to address these shortcomings, Louise Diamond introduced the term "multi-track diplomacy," attempting to establish a linkage between official and unofficial levels. Then further studies explored and expanded on the concept. First, with new tracks, the concept evolved into a four-track model. Later, with additional tracks, multi-track system gained its current form.

Systems-based approach recognizes that the deep-rooted conflicts cannot be solved through mere governmental intervention. Rather, actors such as non-state organizations, civil and business groups, and informal channels need to take part in peace-building to transform deep-rooted crises. Hence, in addition to more traditional applications of conflict resolution, multi-track model seeks to utilize other tracks, or communities, separately or in varying combinations, depending on the nature of situation (Notter and Diamond, 1996).

Originally, the nine tracks were structured hierarchically from the most important to the less important. In the model, government occupied the top position. However, such a top-down interaction did not truly reflect the multi-dimensional nature of the model. Consequently, Diamond and McDonald eliminated the hierarchical structure and redesigned the diagram (See Figure 1) in which all the tracks operate within a system and interact with each other horizontally. This way each track is given greater autonomy with their own distinct methods, resources and values. However, since all linked to the greater system, they operated in relation to each other.²

Diagram 1: Systems-based Approach



Source: Diamond and McDonald, Institute for Multi-Track Diplomacy
Multi-track diplomacy consists of three interconnected strategies for conflict resolution. Capacity building refers to the development of skills in peace-builders required for conflict resolution and reconciliation. Bridge building aims to bring conflicting parties together by creating understanding and mutual trust among them. Institution building provides formal structures to assist the peace-building work. The primary goal of these three levels is to initiate, sustain and improve peace-building efforts (Notter and Diamond, 1996).

The systems approach embraces a large network of actors (individuals, organizations, methodologies and venues) to assist international peace-building and provides a link between structural and political peace-building.³ Rather than conflict resolution, it aims for conflict transformation which “refers to the process of moving from conflict-habituated systems to peace systems” (Notter and Diamond, 1996). It is often the case that a conflict creates its own patterns and is ingrained into the larger social system which internalizes and thus rationalizes the conflict. Therefore, a social system

² See, Chigas, Diana . "Track II (Citizen) Diplomacy." *Beyond Intractability*. Eds. Guy Burgess and Heidi Burgess. Conflict Information Consortium, University of Colorado, Boulder. Posted: August 2003
<<http://www.beyondintractability.org/bi-essay/track2-diplomacy>>.

³ European Centre for Conflict Prevention, People Building Peace- 35 Inspiring Stories from Around the World, 1999, <http://www.peoplebuildingpeace.org/thestories/article.php?typ=refl&id=170>

as a unit of analysis could not be resolved but transformed.

Sudan: History, Conflict and Partition

The conflict between the South led by Anya Nya guerilla movement and the Sudanese government began one year prior to the independence (1956) and lasted until 1972 Addis Adaba Peace Agreement. However, peace did not last long and the South revolted again in 1983 under the Sudan People's Liberation Movement (SPLM) and its armed wing, the Sudan People's Liberation Army (SPLA).

The internal conflict ended with the 2005 Comprehensive Peace Agreement (CPA). The CPA granted regional autonomy to the South and guaranteed greater representation in a power-sharing government. It also stipulated a referendum in the south on independence in January 2011. The referendum was held as planned and the southern Sudanese voted overwhelmingly for partition in January 2011, and the newly independent nation was established on July 2011. In the original agreement, the two sides were supposed to negotiate outstanding issues within the six-month period following the agreement.⁴ However, the partition brought along many questions including the sharing of oil revenues (Medani, 2011).

Originally, the CPA offered a detailed road map for peace. It not only attempted a compromise between the two parties, but also sought internal reconciliation and democratic development in both Sudans. Although the North, which lost one-third of its territory and three-quarters of its oil revenue to the newly-formed southern government, initially showed restraint, conflict broke out soon after the CPA. The South, for its part, was also internally divided and far from controlling many warring factions that violated the terms of the CPA. Consequently, clashes that first took place between Sudanese Armed Forces (SAF) and the border area-insurgency soon evolved into a full scale war between the SAF and Sudan People's Liberation Army (SPLA).

Disputes and the Partition of Sudan

Problems in present-day Sudan has roots going back to the colonial era under the British rulers who drawn the boundary, dividing the country across racial, material and religious lines. Sudan's internal strife mostly occurred along these boundaries and today they mark the border and the nature of conflict. Although the historical animosity is not merely economic, in post-split Sudan the border disagreement has been identified with oil fields.⁵ Before Egyptian and British occupation in the 19th and 20th centuries, Sudan consisted of tribal communities and small kingdoms. In the first half of the 20th century, the British administration separated the region into north and south due to the conviction that the Muslim-dominated north was different from the animist and Christian south (Machar, 1995; Woodward, 2011).

⁴ See, <http://www.insightonconflict.org/conflicts/sudan/conflict-profile/timeline/> and Marina Ottaway and Mai El-Sadany, "Sudan: From Conflict to Conflict," Carnegie paper, May 2012.

⁵Alexander Ziadosz, "Special Report: South Sudan's Chinese oil puzzle"
<http://www.reuters.com/article/2012/11/14/us-southsudan-chinese-oil-idUSBRE8AD0B520121114>

Today Sudan is divided along racial, religious and economic, lines. Racism, in this picture, plays a greater role than religion. As a result of mutual prejudice, while the Blacks are leaving the north, Arab northerners long dwelled in the south are fleeing the region for fear of post-partition retribution (Natsios and Abramowitz, 2011). The split of Sudan has “intersected fundamental problems that existed within both,” further deepening some. The politically unstable North and the economically underdeveloped and internally divided South found their own reason to become suspicious of each other. Both countries, although formally decentralized, remained de facto single-party states and neither side showed interest in making peace agreement work (Ottaway and El-Sadany, 2011). Currently a number of outstanding issues such as the question of shared oil revenues, border demarcation and mass internal migration due to clashes between warring groups continue to affect the post-partition environment.⁶

Sudan remained divided ever since the days of Anglo-Egyptian joint rule. The North where colonial investment had concentrated was predominantly Arab and Muslim whereas the South appeared to be a remote region without resources and therefore was left to the missionaries. In most cases, economic disputes have mutual ethno-religious misgivings in the background. For example, the disagreement over the border region of Abyei is rooted in a conflict between pro-South Dinka Ngok people and pro-North Misseria Arab tribesmen.⁷

In 1983, President Numeiri declared the introduction of the Islamic law. Although the emergence of the southern liberation/separation movement cannot solely be attributed to it, after the proclamation of Islamic law, it gained further momentum and legitimacy. The South often criticized the North for imposing the Islamic law through state power and blamed the coercion on the non-Islamic peoples for one of the reasons that led to the partition of Sudan. Although separation is more visible along the lines of social status and wealth (one can find poor Blacks, Muslim Arabs and Christians dwelling in slums in the outskirts of Khartoum), religious disputes cannot be overruled (Ottaway and El-Sadany, 2011).

Political and economic disputes

Until 2005, political disputes in Sudan were centered on the struggle for greater autonomy and independence by the southern rebels. After the signing of the Comprehensive Peace Agreement (CPA) in 2005, civil war ended and a period of tranquility ensued. However, with the referendum in 2011, the dispute on energy resources became manifest along the fault lines of political division.

Although Sudan and South Sudan split, they still dependent on each other for the continuity of the oil business. Whereas an estimated 75% of the former Sudan’s oil fields are located in the South, the pipeline and refineries are in Sudan. Prior to the independence South Sudan received 50% of the revenue generated in the unified Sudan. Yet this arrangement expired after the peace agreement and talks on the

⁶ See, Energy Information Administration, Sudan and South Sudan Country Analysis Brief, March 19, 2012, <http://www.eia.gov/countries/cab.cfm?fips=SU>

⁷ See, Insights on Conflict, <http://www.insightsonconflict.org/conflicts/sudan/conflict-profile/timeline/>

sharing of the oil revenues ended in failure and the halt of the oil production by the South.

Oil is important for both governments, contributing greatly to the running of the basic governmental functions. During the period leading to the partition, the hope was that the mutual dependency would create an economic symbiosis: The South needed Sudan's infrastructure (pipeline, processing facilities and marine terminal) to transfer and export oil through the terminal at Port Sudan whereas Sudan needed the oil from the South in the form of transit fees and other payments to make up the loss from the split.⁸

Map: Oil Industry in Sudan and South Sudan



Source: Drilling Info International

Source: Drilling Info International

However, the oil dispute got deeper after the partition as Sudan decided to demand the southern government to pay transit fees and other payments to make up for the lost income due to secession. In fact, about 98% of state revenues in South Sudan and over half in the united Sudan relied on the oil sales before the split. In response to Khartoum's demand, South Sudan halted oil production and exploitation.⁹ Although

⁸ Alexander Dziadosz, "Special Report: South Sudan's Chinese oil puzzle," Reuters, Nov 14, 2012.

<http://www.reuters.com/article/2012/11/14/us-southsudan-chinese-oil-idUSBRE8AD0B520121114>

⁹ "China welcomes oil deal between Sudan, South Sudan," Xinhua, 2012-08-06,

http://news.xinhuanet.com/english/china/2012-08/06/c_131765167.htm; Mariar Wuoi, "China's role in North-South Sudan relations," 8 January 2012.

<http://www.sudantribune.com/China-s-role-in-North-South,41210>

the two sides resumed the talks on oil payments in July 2012 and signed an agreement in August, outstanding disputes over the contested regions with rich oil deposits have continued to this day.¹⁰

China-Sudan Relations: Before and After Partition

China and Sudan enjoyed robust diplomatic, economic and strategic cooperation over the last two decades—ever since Jiang Zemin initiated China's reengagement in Africa in 1996. As China's economy grew, the country's foreign policy strategies in Sudan evolved. However, the split of Sudan has cast some doubts on the bilateral relations with Sudan and newly independent South Sudan. Beijing preferred multilateral engagement in the regional crises. However, China's trade policy, especially arms sales to the Khartoum government seemed to contradict the principle of non-interference (Sparks, 2011).¹¹ Also, until 2007, Beijing opposed UN resolutions to deploy peace-keeping forces in Darfur.¹² Yet after the UN involvement, it became the first country, and the only permanent member, to send troops to the UN missions in Darfur and South Sudan.¹³

China and South Sudan: Three years before the partition took effect, in 2008, China opened a consulate in Juba, the capital of South Sudan. Although the South's mistrust still lingers due to Beijing's ties with the Khartoum, bilateral relations are beginning to take shape. China, moving away from its diplomacy of restraint in recognizing the break-away region because of its own one-China policy toward Taiwan and Tibet, set up diplomatic relations with Juba before many others.¹⁴

What caused China to choose a different path? According to some analysts, first and foremost, China understood that secession was inevitable. Also, it had been in constant contact with the interim government in the South even before the split; hence, relations between the two parties had been relatively mature at the time of Sudan's partition.¹⁵ Furthermore, China could not have challenged South Sudan's independence because of the huge energy investment it had in the region. The fact that the solution to the oil dispute depended partly on the southern government obliged Beijing to run a simultaneously amicable relations with two Sudans.

Economic relations

The real boost to China-Sudan relations came in the 1990s with the development of the oil sector and Sudan's isolation from the larger international community. The NPC's (National Party Congress) seizure of power in 1989 and Sudan's deteriorating

¹⁰ "China welcomes oil deal between Sudan, South Sudan," Xinhua, 2012-08-06,

¹¹ "China and South Sudan," *Saferworld Briefing*, August 2012.

¹² Christopher Alessi and Stephanie Hanson, "Expanding China-Africa Oil Ties," Council on Foreign Relations, February 8, 2012. <http://www.cfr.org/china/expanding-china-africa-oil-ties/p9557>

¹³ David Shinn, "China's Growing Role in Africa: Implications for U.S. Policy," Hearing before the Senate Committee on Foreign Relations, November 1, 2011.

¹⁴ "Eyeing oil, Hu congratulates South Sudan," Ben Blanchard, Reuters, July 11, 2011, <http://www.chinapost.com.tw/china/national-news/2011/07/11/309341/Eyeing-oil.htm>

¹⁵ Mariar Wuoi, "China's role in North-South Sudan relations," Sudan Tribune, 8 January 2012,

relationship with the West pushed the government to look for a non-Western investor to develop its oil sector. Beijing offered Sudan a willing partner and, despite of unstable security environment, Chinese energy firms enjoyed a favorable investment climate.¹⁶

Khartoum's need for an investor coincided with China's growing thirst for oil. Currently the second largest, China is estimated to become world's largest importer of oil in less than a decade.¹⁷ It gets nearly one-third of its total import from Africa, world's third largest oil producing region, and Sudan is the second largest regional exporter to China. A non-OPEC producer, Sudan sold 66% of its oil to China in 2011 and CNPC is currently the largest investor in the country.¹⁸

China's oil investment in Sudan's energy sector began in the late 1990s. Before the split of Sudan, China developed the oil fields initially operated by Chevron, which withdrew from Sudan when US placed sanction on Khartoum. Beijing also built pipelines to transport crude from central Sudan to the port on the Red Sea. CNPC has remained the biggest international player in Sudan's oil industry with its 40% stake in Sudan's Greater Nile Petroleum Operating Company (GNPOC). Furthermore, CNPC provides field services and construction, and built two pipelines for Sudan.¹⁹ Driven by CNPC's investments, Sudan's proven oil reserves increased to 6.7bb/l in 2010, from 0.3bb/l, in 2000 (Xin, 2011).

After the partition, China has become a primary target of the southern rebels as a chief partner to the North. In April 2012, 29 Chinese workers were abducted by insurgent groups in the oil rich province of Kordofan. In the same year, president of the Chinese oil consortium based in Juba was expelled by the Southern government. China, however, still maintains certain advantages in the newly independent South thanks to its early engagement. Chinese financial institutions and construction companies have been waiting for the situation to be stabilized to take full part in the development of the South Sudan's economy.²⁰

¹⁶ Ibid.

¹⁷ See, International Energy Agency, *World Energy Outlook*, 2011.

http://www.worldenergyoutlook.org/media/weowebiste/2011/executive_summary.pdf

¹⁸ Shelly Zhao, "The Geopolitics of China-African Oil," April 13, 2011.

<http://www.china-briefing.com/news/2011/04/13/the-geopolitics-of-china-african-oil.html>;

Christopher Alessi and Stephanie Hanson, "Expanding China-Africa Oil Ties," February 8, 2012.

<http://www.cfr.org/china/expanding-china-africa-oil-ties/p9557>

¹⁹ Sundarsan Raghavan and Andrew Higgins, "China in a tug of war between two Sudans," Washington Post, March 23, 2012; "The Main International Oil Companies Present in Sudan," Understanding Sudan,

<http://understandingsudan.org/Oil/OilResources/L2FS9-MainIntlOilCoPresentinSudan.pdf>

²⁰ China and South Sudan, Saferworld Briefing, August 2012.

Chinese Diplomacy in Post-Split Sudan

China approached cautiously to the partition of Sudan.²¹ As the referendum approached and it became clear that the South would secede, Beijing began to develop relations with the southern interim government. Chinese investors in agriculture, telecommunication, financial services and infrastructure moved to the South.²²

With the partition of Sudan, China's engagement evolved into a trilateral framework. Beijing maintained close ties with the North while it worked to improve links with Juba, encouraging both sides to negotiate outstanding disputes, most importantly the oil dispute. Apparently, Beijing realizes that in order to protect its energy interests, it needs both sides cooperation. Therefore, a negotiated peace is more favorable to Beijing than a protracted civil war.²³

One of the strengths of Chinese diplomacy is the ability of the PRC to provide financial aid, the experience it gained in dealing with the Darfur crisis, and the existing energy and other investments. However, China's diplomatic efforts in the region do not match its capabilities as a great power.²⁴ Multi-track diplomacy will be instrumental to bridge the gap between China's capabilities and its actual influence. Hence, the idea that Beijing should stay out of Sudan's internal disputes and limit its engagement to trade needs be modified since traditional method will not be adequate to address the complex nature of Sudan-South Sudan conflict.²⁵

Strategies of multi-track diplomacy

China's engagement in pre and post-partition Sudan has been predominantly based on traditional diplomacy. However, a successful engagement requires China to depart from classic government-to-government interaction. Then the question is how China could carry out a multi-track diplomacy in Sudan and South Sudan. Apparently, not all tracks may be available at once. The dispute between Sudan and South Sudan has strong economic, ethnic, political and cultural components. Therefore, the following tracks are believed to be applicable:

Track one: Traditional government-to-government conflict resolution techniques may be used to bring the two sides together. In this respect, China has been at the forefront of international efforts. Through official channels, China has continuously encouraged both Khartoum and Juba for a negotiated and reconciliation-based solution to the conflict before and after partition. Although before the partition, China stood closer to the North, it did not hesitate to establish diplomatic ties well before the referendum. After the referendum took place and the issue of disputed areas and oil payments

²¹ Ibid.

²² David H. Shinn, China's Deft Sudan Diplomacy, *The Diplomat*, September 19, 2012.; Mariar Wuoi, "China's role in North-South Sudan relations," Sudan Tribune, 8 January 2012.

²³ James Traub, "The Accidental Peacemaker," *Foreign Policy*, May 4, 2012.

²⁴ "China's New Courtship in South Sudan," Crisis Group Africa Report N°186, 4 April 2012.

²⁵ China and South Sudan, Saferworld Briefing, August 2012; Christopher Alessi and Stephanie Hanson, "Expanding China-Africa Oil Ties," *Council on Foreign Relations*, February 8, 2012,

surfaced, China maintained an impartial posture. Hence, Beijing have thus far successfully utilized track-one options.

In the post-split era, China's track-one diplomacy needs to be separate but coordinated because, at least in the medium run, Sudan and South Sudan will remain dependent on each other for a big chunk of their economy. With its huge energy investment in line, China needs to make sure that this symbiotic relationship would go unhindered.

Track-two: Track-two involves non-official and non-governmental action to prevent or resolve violent conflict (Dixon and Simmons, 2006). A country's soft power is often projected through such organizations (NGOs) that act relatively independently from the state apparatus. Chinese NGOs have been active in Sudan in a wide variety of areas including health, education and agricultural development.²⁶ However, further effort could be made in this realm so that Chinese NGOs would be more effective in public diplomacy.

Track-three (Business): Apart from track-one, business diplomacy may be considered the area that China is the most advantageous. Decades-long sanctions that kept Sudan out of the reach of most international investment allowed China to become a major economic actor there. Over the years, Chinese companies have invested in, among others, energy, infrastructure and telecommunication sectors. Hence, business diplomacy may lead to improved living standards including health, education and an overall improvement in the quality of life in both Sudans. On the other hand, questionable business practices (environmental degradation, corruption, etc.) and political considerations (the southern government's decision to expel the head of Chinese-led energy consortium) may negatively affect peace-building efforts.

Track-four (Citizen Diplomacy): Chinese nationals in both Sudans may assist the peace-building efforts in the conflict-hit areas through grassroots mobilization. Interested individuals or groups could act in unison without being hindered by the formality, protocol or government mandate. Citizen diplomacy may also enable the participants to get a better sense of international disputes and reflect on their preconceptions, which creates a better environment for mutual understanding.²⁷ In this area, too, much has yet to be done.

Track five (Research, training and education): Track-five diplomacy involves the activities by professionals (think tanks) and students (colleges and universities). Scholars may be brought together to devise strategies and recommend solutions. Students, considered less constrained by formalities and more creative, may offer grassroots assistance. China's track-five activity in Sudan and South Sudan are still in its initial stage and there are further steps it needs to take.

Beijing opened the first Confucius Institute in 2007 at the University of Khartoum and in 2008 a partnership agreement was signed between China's Northwest Normal

²⁶ "China, Africa to build new model for NGO co-op," Xinhua, 07/11/2012,

http://www.chinadaily.com.cn/china/2012chinaafricaforum/2012-07/11/content_15575890.htm

²⁷ Bonny Ling, "China's Peacekeeping Diplomacy," China Rights Forum, No. 1, 2007,

http://www.hrchina.org/sites/default/files/oldsite/PDFs/CRF.1.2007/CRF-2007-1_Peacekeeping.pdf

University and University Khartoum for student exchange. In September 2012, South Sudan announced its intention to build five university campuses with \$2.5 billion loan from the Chinese government.²⁸ These efforts need to be upgraded so that they would bring the warring groups together in non-political (peace-building) settings and thus contribute to the mutual understanding and normalization.

Track-eight: This track, that is, funding, is perhaps one of the most important areas that China could play a dominant role. So far, Chinese individuals, NGOs and private companies have carried out significant philanthropy activities in Sudan and South Sudan. Hospitals, schools, roads, dams and irrigation and sewage systems have been built with the funding and expertise provided by various groups and entities from China.

In 2010, the China Foundation for Poverty Alleviation announced to establish 13 hospitals for women and children to help decrease the maternal and infant mortality rates.²⁹ In July 2012, delegates from China Charity Foundation opened China-Sudan Friendship Hospital.³⁰ These efforts could be widened in scope so that the quality of life a larger segment of the populations on both sides would improve and the frequency of mutual interaction is increased.

Track-nine (Media): Electronic, visual and print media is important in informing and engaging the public on both sides on issues related to peace-building. In this respect, the most important step was taken in 2012 in which China's CCTV and Sudan's State Television signed a framework cooperation agreement. Under this agreement, the sides pledged to increase communication and awareness of each other among the general public.³¹ Beijing can utilize this advantage (of having a strong media presence) for efforts towards creating in Sudan and South Sudan a favorable environment in which both sides are kept informed of each other and people-to-people relations are more normalized.

Conclusion

Sudan, once the largest and one of the most geographically diverse states in Africa, was split in two due to deep socio-cultural, economic and political differences and

²⁸ Alexander Dziadosz and Hereward Holland, "South Sudan plans China-backed \$2.5 billion university project," Reuters, September 13, 2012,

<http://www.reuters.com/article/2012/09/13/southsudan-education-idUSL5E8KD83Z20120913> ;

"Culture Exchanges between China and Sudan," Chinese Embassy in Sudan, 2012/03/05,

<http://sd.china-embassy.org/eng/whjl/t911020.htm>

²⁹ Wang Hui, "The China Foundation for Poverty Alleviation Internationalizes," China Development Brief, No. 45 (Spring 2010).

³⁰ "China Charity Foundation Delegates visited Sudan," Tiens,

http://www.tiens.co.za/index.php?option=com_content&view=article&id=267:china-charity-foundation-delegates-visited-sudan&catid=139:news-a-promotions&Itemid=261

³¹ "CCTV and Sudan State Television Signed a Cooperation Agreement," 2012/06/07,

<http://sd.china-embassy.org/eng/whjl/t939073.htm>

disagreements. Although economic factors are emphasized and most research has been done from such perspective, it is believed that Sudan-South Sudan split cannot be understood merely through economy-driven explanations. State-led classical diplomacy has been insufficient in tackling the issues that run deep in Sudan-South Sudan relations. For the problem is multi-dimensional, any action taken to address it needs to be multi-dimensional.

The systems approach, offers a well-articulated and comprehensive methodology to understand conflict environments. In this paper, it is argued that multi-track diplomacy may be instrumental in facilitating peace between Sudan and South Sudan. Hence, if implemented well, it may assist Beijing to manage the conflict and, as a result, protect its energy interests. The reason that China is regarded one of the viable candidates to carry out such strategy is that Beijing has been involved in Sudan and South Sudan's affairs for over two decades due to its dependency on energy resources and thus holds considerable power to influence the two major actors' behavior. Therefore, considerations for energy security provide an incentive for Beijing to play a more active and constructive role.

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The Roles of ASTV Channel on Political Socialization: A Case Study of Maha Sarakham Audiences

Chayanoot Veerasarn

Maharakham University, Thailand

0619

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Abstract

The People's Alliance for Democracy (PAD)'s political rally resisting Thaksin system for 193 days is not only the longest rally in Thailand's history, but it is also the new political phenomenon (i.e. broadcasting the rally for 193 days) in television industry. The mentioned broadcast had audiences from across Thailand and eventually caused a major political change. This is the reason for examining the roles of ASTV channel about political socialization in the case study of the channel audiences in Maha Sarakham where is a political stronghold of the old network of Police Lieutenant Colonel Thaksin Shinawatra and also the place of the assemblies of people in the name of PAD.

In this research, the political socialization includes political awareness, political attitudes, and political participation. Questionnaires were used with ASTV channel audiences in Maha Sarakham. The findings show that the audiences have medium and high levels of political awareness. Their political attitudes are consistent with information provided by the channel. In terms of political participation, the political discussion of most audiences is also considered as a form of political participation. Moreover, these people are also considered as the one active in receiving political information.

By considering the relationships between demographic characteristics, media openness, and political socialization, it is found that gender and education level have no relationship with media openness and political socialization. Gender, occupation, and income have relationship with media openness and political socialization. These findings are consistent with the analysis results of the difference between demographic characteristics and political socialization indicating that people having different genders and education levels have similar political socialization, while people having different ages, occupations, and incomes have different political socialization.

Keywords: Political Socialization, Media Roles, Thai Politics, Thai TV, Maha Sarakham

Introduction

The People's Alliance for Democracy (PAD)'s political rally resisting Thaksin system is the longest political rally in Thailand's history starting from 25 May 2008 to 2 December 2008 (193 days). The rally had speeches, dialogs, and new reporting of the mainstays of PAD, former politicians, political activists, scholars, and speakers who had different occupations. Therefore, the rally became the stage that was considered as a university having audiences and participants as its students.

The rally was broadcasted for 24 hours a day on ASTV channel, which is a television media that resists Thaksin system and protects the Constitution of the Kingdom of Thailand 2550 B.E. as well as constitutional monarchy. It was also considered as the first political phenomenon in Thai television industry.

ASTV station broadcasts the rally on various communication channels such as local cable television channels, DHL satellite television channels, local radio frequencies, and internet. Hence, the number of audiences increases. Currently, ASTV audiences are about 20 million that is the double of the number in 2006 because the political news reported on this channel cannot be found in the government's television channels. Thus, the sales volume of ASTV satellites is continuously increasing. Many ASTV audiences are northeast people who do not only watch the PAD's rally on ASTV channel, but also form political groups in the name of PAD in each province in the northeast region of Thailand. Similar to other regions, the northeast people form the groups, even though their region is used to be the political stronghold of the old network of Police Lieutenant Colonel Thaksin Shinawatra. Therefore, the conflicts between the people resisting and supporting Thaksin system occur when sub rallies are conducted in each province.

The opposite side of PAD uses violent actions with the PAD supporter as happened in Buriram on 21 July 2008, in Maha Sarakham on 23 July 2008, and in Udon Thani on 25 July 2008. One of provinces that the conflicts occurs is Maha Sarakham, where some ASTV audiences joined the PAD's rally in Bangkok and in this province. Interestingly, the question is why these people think differently from the majority of Maha Sarakham people and support PAD in the environment that is used to be the political stronghold of the opposite side? Even though ASTV channel has disadvantages as compared to free television channels, the number of its audiences is still increasing. This is a new phenomenon of Thai television industry that the channel, ASTV channel, instead of newspapers becomes a media politically influencing audiences.

Objective

To study the roles of ASTV channel on political socialization of Maha Sarakham people (The political socialization refers to political awareness, political attitudes, and political participation)

Methodology

This study analyzed 100 ASTV channel audiences in Maha Sarakham who had watched the People's Alliance for Democracy's rally on this channel for 193 days by

using questionnaires. The questionnaires are divided into three parts: demographic characteristics, media openness, and political socialization. The research aims to examine the relationships between demographic characteristics, media openness, and political socialization.

Findings

By analyzing the questionnaires completed by 100 ASTV channel audiences in Maha Sarakham who have watched the People's Alliance for Democracy's rally on this channel for 193 days, it reflects their political socialization and the relationships between their demographic characteristics, media openness, and political socialization.

By considering the relationship between demographic characteristics and media openness of ASTV channel audiences in Maha Sarakham at the significant level of 0.05, it is found that gender and education level has no relationship with media openness, while age, occupation, and income have the relationship with media openness.

While there is the relationship between demographic characteristics and political socialization of ASTV channel audiences in Maha Sarakham at the significant level of 0.05, it is found that gender and education level have no relationship with political socialization. Age, occupation, and income have the relationship with political socialization.

These findings show that the relationships between media openness, political socialization, and demographic characteristics are consistent. In other words, media openness and political socialization do not depend on gender and education level. Both genders can similarly receive news and learn about politics. It cannot be identified that which gender can learn more. Although most people who participate in the PAD's rally in Bangkok are female, it cannot be concluded that female participants are interested in political more than male participants because the awareness, attitudes, and participation of the men who do not participate in the rally cannot be identified.

Similarly, the findings show that education level has no relationship with media openness and political socialization. In other words, it does not mean that people who have low education level cannot learn politics nor have no political knowledge. By receiving news from televisions instead of newspapers, the people who have low education level can learning politics, especially from ASTV channel same as those who have high education level.

This issue can refute many research results indicating that newspaper media openness has positive correlation with public affairs more than television media openness. One research found that the correlation between the space of news provided in newspaper and the remembered contents of news is stronger than the correlation between the news reporting periods on television and the remembered contents of the news (Satian Choeypratub, 2009: 306). The findings of this research indicate that if television media report qualitative news as in newspaper and audiences regularly receive news, then they will be able to learn politics without having to read newspapers.

By considering gender, occupation, income, media openness, and political socialization in details, it is found that the relationships between these factors are consistent.

The audiences, 18 – 25 years, who are students and have income 5,000 – 10,000 baht have less media openness as compared to other people who have different ages, occupations, and incomes.

This can be concluded that the people aged 18 – 25 years lack of interest in politics as can be seen from their political awareness and political attitudes. Mostly, their answers in the questionnaires are “Not sure”. This is consistent with the concept of knowledge gap that explains about education by giving an example of the respondents of a research answering “Do not know”.

These respondents are called as “neutral people who care nothing” (Satian Choeypatub, 1997). This answer is similar to “Not sure”. This can be summarized that the people who have less media openness do not have much political knowledge. However, it cannot be concluded that these people have low education level because the previously mentioned findings show that education level has no effect on political socialization. Moreover, as they are not interested in political news or think that politics is not directly related to their lives or occupations, they are not interested in political participation.

Nonetheless, by considering the answers in the questionnaires, it is found that the main reason for watching ASTV channel is to know the unknown news. This shows that the audiences believe that good civilians have to follow news (Satian Choeypatub, 1997), especially the audiences who watch ASTV channel everyday and many hours a day. Their interest is also considered as their political participation that is part of political socialization.

Other interesting issues from the questionnaires are the differences between demographic characteristics and political socialization/knowledge of ASTV channel audiences in Maha Sarakham. It is found that the data about gender and education level similarly have medium level of political awareness, while the data about age, occupation, and income have different levels of political awareness. Nevertheless, there are no data in any group that indicates low level of political awareness. It can be considered that regularly watching ASTV channel strongly affect political awareness.

Another interesting issue is about age. It is found that the people aged more than 55 years have the highest political awareness followed by the people aged 46 -55 years. This indicates that old people have more interest in political news than other people because most of them do not have to work or resign from their jobs. Therefore, they have more time to receive political news and think that politics directly affects their lives. So, they can remember more contents of news reported on ASTV channel than other people. This finding is relevant to the fact that most people, both men and woman, participating in the rally in Bangkok are middle aged and old aged.

The issue of ASTV channel audiences who have different education levels similarly have medium level of political awareness indicates that education level has no effect

on political awareness. The researcher considers that official education is not an obstacle for recognizing politics. This is consistent with the speeches of the mainstays of PAD that considered the PAD's rally on Ratchadamnoen road providing knowledge from scholars, knowledgeable people, and experts for 193 days as "Ratchadamnoen University". Regardless of education level, the people who participate in the rally and ASTV channel audiences are all students who can equally receive news from the rally. Hence, the mentioned finding is not consistent with the hypothesis of knowledge gap (Satian Choeypratub, 2009) predicting that the people having higher education level will learn faster than those having lower education level.

There are obstacles for political awareness that are the variety and contents of news. That is, if people are not aware of political news, then media will only report some parts of the news. Thus, the people will not be aware more of the news. If the people can receive the variety and complete contents of news, then they can be aware more. Because of these obstacles, ASTV station tries to donate ASTV satellites to the people in rural areas in order to provide them opportunities to receive more news.

In terms of occupation, the group of people who are housemaids has the highest level of political awareness followed by the group of agriculturists and resigned government officers. By considering the answers in the questionnaires in details, it is also found that these groups of people have quite high frequency of receiving news (i.e. watch television every day and many hours a day). Therefore, they can remember more contents of the news reported on ASTV channel than other groups. This indicates that frequently, regularly, and intentionally watching ASTV channel can make the audiences learn and be aware of politics. In other words, it is because those groups of people have more free time than other groups of people. So, they spent their free time to watch television more than other groups.

In terms of income, it is found that the people who have income higher than 40,000 baht have the highest level of political awareness followed by the ones having income of 30,000 – 40,000 baht. This indicates that the people having high income have high level of interest in politics, regularly receive political news, and can remember many contents of the news reported on ASTV channel. In details, these groups of people have a similar reason for watching ASTV channel. The reason is they do not support Police Lieutenant Colonel Thaksin Shinawatra. This can be summarized that the people having high income think that Thaksin system affect their lives and national security that will eventually affect their incomes.

The researcher found that ASTV channel does not only provide facts from the PAD's rally, but also provides political knowledge and attitudes as well as opportunities for participating in politics. Even though Maha Sarakham has small number of ASTV channel audiences, the results show that the audiences receive news, have new attitudes, and participate in politics. This reflects the important roles of ASTV channel about political socialization. Especially, ASTV channel is also the medium of the communication between the people who are the PAD's supporters and the PAD's mainstays and between the PAD's supports across the country for the continuation of political activities as Sondhi Limthongkul said that "if there is no ASTV channel, then it will be difficult for the PAD to assemble" (Sondhi Limthongkul, 2009). Television plays a role in broadening the sense of group identity and establishing the reference

norms and the standards of the social group with which the person identifies. (Dlutsky, 1991)

Conclusion and Discussion

The findings of political awareness indicate that behavior of regularly receiving news from ASTV channel with/without reading newspapers and receiving news from other media make the audiences to have more political knowledge or high level of political awareness. This awareness was caused by watching the programs (i.e. speeches, dialogs, discussion, news, and explanation) of ASTV channel for 193 days. Any television media has not done the rally broadcast for 193 days.

Also, the findings can refute the beliefs and other research findings indicating that newspapers provide more qualitative news than other media and newspaper readers can remember more contents and knowledge about public affairs than television watchers. ASTV channel proves that it can provide qualitative information and broadcast live rally that can clearly show the real situations; for example, the dissolution of the rally on 7 October 2008 in front of the congress; the people participating the speech in the government house are fired by the officers of the Metro Police Bureau with M79 granades; and the work team of ASTV studio are fired with AK rifles while filming in the studio. Those situations were repeatedly broadcasts in the programs of ASTV. That is to say, it is an advantage of television media as compared to newspapers.

In terms of political attitudes, ASTV channel has roles in changing its audiences' attitudes. In other words, some audience might support or had neutral attitude towards Police Lieutenant Colonel Thaksin Shinawatra before watching ASTV channel. After receiving facts about Police Lieutenant Colonel Thaksin Shinawatra for a long time, they started comparing the facts from ASTV channel and that from other media and agreeing with that from ASTV channel. Eventually, their feeling and attitudes towards Police Lieutenant Colonel Thaksin Shinawatra are changed, while their attitudes towards PAD become more positive. This is consistent with the concept of the influence of mass media on people's opinions and politicians' images that news is part of political images. Therefore, people currently are influenced by the mass media. Also, the mass media have influence on media openness (Satian Choeypratub, 1997).

After some audiences who have negative attitudes towards Police Lieutenant Colonel Thaksin Shinawatra receive the information from ASTV channel, their attitudes become more negative. That is, their attitudes are confirmed by the information. Also, they are ready to believe in new information and express their opinions that are difficult to be changed. This is similar to the concept of Key (Key, 1961) who stated that the important influence of mass media on political attitudes confirms the existing attitudes. Partly, this is because people usually are interested in mass media if the information provided by the media is relevant to their thoughts, beliefs, or attitudes. On the other hand, they will not be interested in mass media if the information is not relevant to them.

With thoughts, beliefs, and attitudes that have been existed for a long time, audiences interpret information under their environments. That is, if ASTV channel provides information about suspicious politicians in an area that politicians usually buy votes

or commit corruption, then the people in the area will interpret that the information is true and trustable because they already know the current situations. For instance, the people in Maha Sarakham decided to join the rally or expressed their resistance of the government in various forms. This is consistent with the questionnaire answers of the people applying the information provided by ASTV channel to their decision to join the rally.

There are many previous research findings showing that the mass media generally has no direct effect on people. The mass media reach opinion leaders, and then the leaders transfer the contents from the media to people influenced by them or searching for the contents from them. However, the findings of this research show that the mass media has direct influence on people. After receiving the information from ASTV channel, the audiences can act and express their opinions by themselves as can be seen from the call of the PAD's mainstays for doing activities (e.g. Daokrajay activity, civil disobedience activity, symbolism activity, or donation activity in Bangkok by ASTV station) that are quickly answered by the audiences without the actions of the opinion leaders.

ASTV channel often has the role in sparking people to think and pay attention to political news, especially the discourses about Prachabhiwat government and new politics that are accepted by people and an ally resisting old politics as well as replace other news in other media.

Furthermore, ASTV channel also indicates that peaceful rallies are effective political activities as the concept of Satian Choeypratub (2009) that the mass media provide examples of political participation by reporting political behaviors and actions. Also, the mass media indicate that which political activity is effective or ineffective.

Nevertheless, the roles of ASTV channel about political socialization are part of political awareness and attitudes. While other political participation such as political rallies, political symbolism activities, and opinion expression are not enough (there are only political discussions between people who know each other), the people discussing about politics show that they are active in receiving political news and discussing about politics. Consequently, they are in the group that can be easily affected by politics (Schoenbach & Weaver, 1985).

By conducting fieldworks, it is found that the number of Maha Sarakham people watching ASTV channel is low. Thus, the channel does not have important roles about political socialization of those people, especially political movements as compared to other provinces in Thailand. And with the participation of political expression manifest, there might be strong resistance from a greater number of Police Lieutenant Colonel Thaksin Shinawatra's supporters in such areas including the inhibition of some government officials that support the Thaksin's nominated government.

It can be concluded that despite the political communication through a satellite ASTV plays a role of political socialization, overall, it does not have enough power to push for political change at the national level. ASTV is the only spark of political socialization to those who need a variety of information only. If the matter still cannot

be reached, whether by intention or not, it's hard to result in the perception of political attitudes and participation in democracy truly.

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Sustainability of Customary Society: A Case Study of Lampung, Indonesia

Masanori Kaneko

National Museum of Ethnology (MINPAKU), Japan

0624

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Introduction

Since the collapse of Soeharto's regime (1966-1998), the democratization and decentralization are in progress in Indonesia. Also got out of the financial crisis then, Indonesia is now enjoying the benefits of economic expansion. Here, we will discuss about the sustainability of custom (*adat*) amidst these changes based on the cases from Lampung, Indonesia (Figure 1).

Lampung is a province at the southern tip of Sumatra Island, and its indigenous people are also called the Lampung. They are living with the domestic migrants whose population is nearly eight times of them. The migrants were come from dense population areas, such as the islands of Java and Bali, especially in 1970s to 1980s. As the result, multi-ethnic situation has become general not only in cities but also in the villages in this province. Along with the influences of this migration, the labor mobility, materialistic tendencies, life course diversity of the Lampung themselves is also causing custom changes. Generally, they have experienced the similar changes of what Sipirok Batak people of north Sumatra Island experienced in 1970s; the de-sacralization and de-politicization of *adat* [Rodgers 1979: 35].

Currently, the main roles of a custom in Lampung are to define the relationships between kin, between villagers, or between villages, also work as protocols for rituals and social norms. Here, we call the person, *tokoh adat*, who is playing an important role for the practice of custom as *adat* Intellectuals. By focusing on custom (*adat*) and its practitioners, I would like to try to show that the inheritance of the knowledge and the successor dilemma for practitioners is the two main problems for the sustainability of customary society in Lampung.

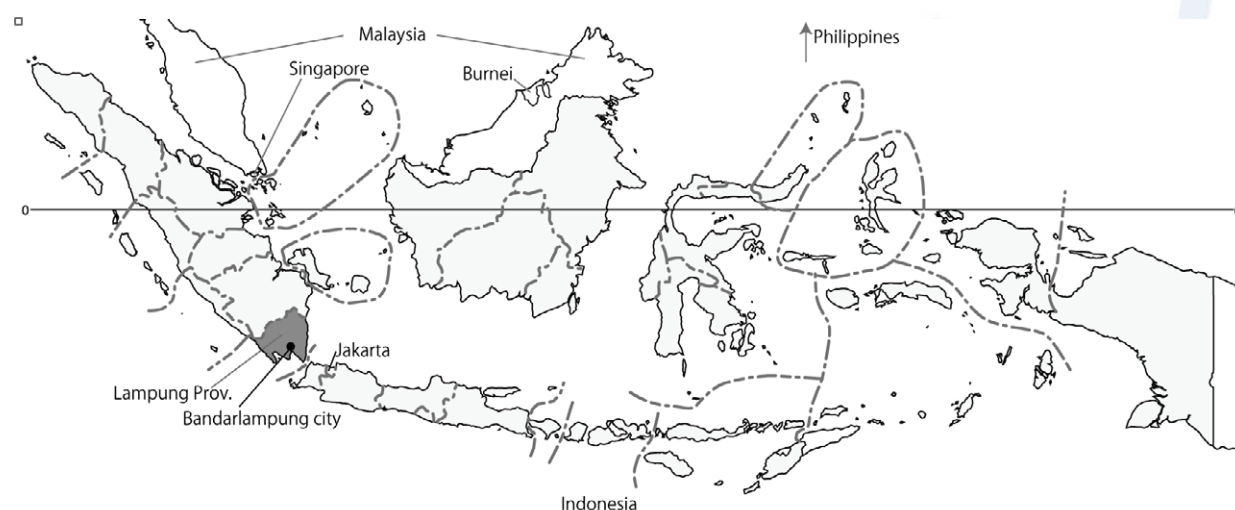


Figure 1: Map of Indonesia and Lampung

1. Social and Cultural Background of Lampung

Historically, Lampung has been one of the most important pepper production areas in the world, also an intensive cash crop production area, which focused on crops like coffee, palm oil, cacao, sugar cane, and corn. Therefore, the main industry of Lampung people has been agriculture.

Since 1905 under the ethical policy of Dutch colonial rule, many people have been migrated to Lampung, mainly from Java Island, for to reduce the population pressure of Java (called *kolonisasi / transmigrasi* in Indonesian). Even after the independence of 1945, same policies have been executed continually, especially under Soeharto regime. In 1971, the population of Lampung province was around 2.7 million people, it was over 7.6 million people in 2010. Such rapid population growth was accelerated because most migrates of the earlier years were young newlyweds aged from 20s to early 30s, often migrated with their infants. The flow of migrants peaked out in late 1980s. Statistic data in 2000 shows that the nearly ninety percent of the inhabitants are migrants or their spouses, and not only in the urban area but in the rural area, and even in their household because of the increasing inter-ethnic marriage, people live in the multi-ethnic situation. The migration influences Lampung people both politically and culturally, and they take it as a process of "*Jawanisasi* (Javanization)," because most of the migrants are Javanese. Population mobility for job opportunities is also increasing, not only to nearby urban area, but also inter-provincial, so incoming and outgoing flows of population are also characteristic for younger generations of Lampung. Because of this absence, younger generations cannot participate in rituals constantly and it also causes the difficulties for succession of customary practice.

Therefore (1) dominance of migrants and its influences for custom of Lampung people, and (2) the changing ways of earning and the way of life of them are causing modifications of custom and also causing the sustainability dilemma of it. Although the main industry of Lampung people is still agriculture and the base of a customary society is in rural area even now, increasing city-based white-collar workers like office workers, bureaucrats, merchants, academics, such white collar workers gain more money than people who live in rural areas, and the quick ascend of such people in customary social hierarchy by feasts of merit is also causing the social structural change of the customary society.

For to approach the sustainability problems of custom (*adat*) in Lampung, the practice and the succession, it would be better for us to see what is an *adat* in general.

2. *Adat* in Indonesia

Adat is a Malay word, which originated from An Arabic word, *ādah*. It means "custom," "practice," "traditional order," or "customary law." The word has been used not only in Indonesia, but also in Malaysia, southern Thai, and southern Philippine. Although the usage of the word varies between each area, it is a kind of past norm or rule which succeeded up to the present. In some cases, an *adat* is documented, but many of which are orally succeeded.

While an *adat* is easily received as an immutable traditional system of a society, we should mind that the flexibility is the key nature of it, so it can be changed both consciously and unconsciously through practice. Therefore, one should rather not to think a customary society as a unitary whole of ritual, language, and social organization, especially in the present age.

A *masyarakat adat* (customary society) is basically almost equal to an ethnic group whose mother land has been in the territory of Indonesia. On the other hand, for example, societies of the Chinese, the Arabic, and the Indians whose ancestors have migrated to Indonesia centuries ago don't be mentioned as *masyarakat adat*. A *masyarakat adat* is also be called *masyarakat hukum adat* (customary law society), it is because *adat* regulations have been legally valid in the late Dutch colonial era, and

the Indonesian juridical system succeeded it, a custom is still mentioned as *hukum adat* legally.

In Indonesia, the right of customary (or traditional) society is clearly written in the constitution (Undang-Undang Dasar 1945) as follows:

Clause 2 of article 18-B: *Negara mengakui dan menghormati kesatuan-kesatuan masyarakat hukum adat beserta hak-hak tradisionalnya sepanjang masih hidup dan sesuai dengan perkembangan masyarakat dan prinsip Negara Kesatuan Republik Indonesia, yang diatur dalam undang-undang.* (Customary law society is accepted and is respected by the government as far as it contributes to national unity and also observes the national law.)

Clause 3 of article 28-I: *Identitas budaya dan hak masyarakat tradisional dihormati selaras dengan perkembangan zaman dan peradaban.* (The cultural identity and right of the people will be valued as far as it meets with the development and manners of the times.)

For to build the new nation-state, Indonesia, *adat* is redefined juridically. *Adat* lost its position in the political and juridical arena, although because of the imperfection of legal system, some disputes over resource, such as land, forest, and water, may be settled in accordance with custom.

Adat can keep its position in cultural arena as far as it meet with the developing national value and national culture, and it has also become taken as the source of cultural diversity which should be reserved.

We can see an example of the actual changes of an *adat* (custom) and *masyarakat adat* (customary society) in a case study. Rodgers, an American cultural anthropologist who has conducted her field research of *Sipirok Batak* people of north Sumatra Island in 1970s, showed that "the Indonesian lessons in the schoolrooms introduce national concerns and social expectations to the children. Beyond this, city newspapers, national political campaigns, city radio broadcasts, and the steady stream of visitors to the village from large cities forcefully brings Indonesian national culture into the most isolated farm village. Considerable portions of *Batak* institutional life and social thought, not surprisingly, fall outside the scope of the traditional *adat* today" [Rodgers 1979: 32]. And she also showed the de-sacralization and de-politicization of *adat* at that time [Rodgers 1979: 35].

Another case study shows that the review of the social position of *adat* is still in the process. Okamoto, a Japanese political scientist, showed the current situation of *adat* in South Sumatra province, where local government assessed the actual conditions of *adat* in mid 1990s, and clarified its limit and defined the validity of *adat* because it is not suitable for the current social circumstances any more with the view of human right, inconsistency with superior regulations, and so on. It is partly because there are many disputes over customary land rights, and government does never want to escalate by giving more authorities to customary societies for regional security [Okamoto 2012: 237-242].

Besides that the external economic, demographic, politic, and legal factors are working for redefining what a customary society is, there are internal factors which cause the sustainability problems for customary society now. For to see internal factors, we'll focus on the practitioners of *adat* of the Lampung.

3. *Tokoh adat* (*adat intellectuals*)

The word *tokoh adat* means key figures of a customary society like customary high ranked people, for example. They should be responsible for sustaining the customary society by nature, however, it is also true that both of who are descended from the high ranked families and who are recently ascended the customary hierarchy have not enough knowledge about their *adat*. It is partly because they have moved to urban areas and do not have enough chance to participate in rituals usually held in rural areas. Rural based ordinary younger generations of the Lampung who would be easily recognized as the main successors of their custom also have less practice because of their labor migration to larger cities outside the province for years and often for longer period, so they also have not enough chance to participate in rituals in their home village.

Here, I will use the word *tokoh adat* in rather expanded definition including practitioners of *adat* whose customary rank is not so high, and will translate the word as "*adat intellectuals*" for to explain their character. They also arbitrate troubles over the customary rights, however as I mentioned above, the main role of *adat* in the daily life is to define the relationship between kin, villagers, or between villages, and it also works as a protocol for rituals and a norm for matters of ethics. A *tokoh adat* should be able to conduct rituals correctly and for that purpose a candidate of *tokoh adat* should have enough experiences of rituals and better understandings of the protocols, rules, and necessities for ritual. It is also important that they have the ability to interpret protocols and rules, to solve irregular troubles or misunderstandings for ritual in progress. As practitioners, not only they moderate the feast of merit, the marriage ritual, and other rituals related to life cycle. Historically, they have also played another important role for documentation of their custom, therefore, I translate the word as *adat Intellectuals*. Here, we see the cases of the *Pubian* people, a sub-group of the Lampung.

In Lampung, *adat* had been inscribed on large bundled strips which was made with the slice of a kind of palm leaf stem. It is said that some of them were collected and moved to Netherlands during the Dutch colonial era, and also some of them were flooded away or just lost at natural diseases, or damaged during the war. It was also related to the changes of people's mind about *adat*. A group of *adat intellectuals* from *Bukujadi* clan of the *Pubian* society thought that they were confronting the crisis of their *adat* under the Dutch colonial rule.

They have started to research and document their *adat*, in 1930-60s but intermittently and once came to a deadlock, mainly because of the war and independence struggle. Researching the original strapped *adat* records was a difficult work as they kept by various people who lived in various areas, and even the straps were also lost in various reasons during that period. After the independence, people became prefer to the nationalistic way of thinking than customary one. However they kept on trying, and completed it in 1960s (*Kitab Kutara Rajaniti / Adat Siti Gumanti*, 1st ed:1965, 2nd ed:1968). Their result was published as 1,000 copies of private edited book, and it became the indispensable resource for the practice and the succession of knowledge of *adat* of *Bukujadi* clan.

In 1980s, another group of *adat* intellectuals from other clans of the *Pubian* society (*Tambapupus* and *Manyakhakat*) tried to research and document their *adat*. Based on the fruits of research, they have published *Buku Handak* and later its enlarged edition, *Buku Handak II*. For people of *Tambapupus* and *Manyakhakat* clan, this book also became the indispensable resource for the practice and the succession of knowledge of *adat* until now. It was until 1990s that the older generations were still actively working in *adat* matters, and such documentation was a kind of heritage to younger generations.

4. Successor dilemma of *adat* intellectuals

In Lampung, the multi-cultural, multi-ethnic circumstances, the population mobility, and also other modernization factors which changing peoples' way of thinking and way of life also cause the sustainability problems of customary society. Along with the external economic, demographic, politic, and legal factors, there are two main internal factors for successor dilemma of *tokoh adat* of the *Pubian* people, Lampung: (1) migration flow of younger generation from rural to urban, (2) changing nature of *adat* and *tokoh adat*.

Nowadays, most of *tokoh adat* and also most of the *Pubian* people belongs to the generations after the independence of the republic in 1945. Current *tokoh adat* in villages act as practitioners and there are no such remarkable intellectual activities now, it is one of the major changes of *adat* intellectual's character.

Other major change is that it looks like that they gained a new role in political arena especially after entered this century. Although they have almost no access to the decision making process, they act as a contact person of one's village for elections; election for provincial governor, for example. It may relate to the regional autonomy in progress, which was first approved by the People's Representative Council in 1999. Before that time, under the highly centralized government of Soeharto, the second president of the republic, the local chiefs were appointed by the central government, but nowadays grass-roots support for election is indispensable for to win the election because of the democratized election system. Many *tokoh adat* take part in organizing the customary society based political units.

For people living in the multi-ethnic urban area, the importance of *tokoh adat* and *adat* relatively looks like reducing. They looks prefer more modernized feasts rather than traditional exclusive customary rituals. For example, it is often true for marriage that *adat* ritual is only a mere formality while *pesta* (party) is held in big scale. It is partly because the social relation of each urban people is not limited in their ethnic groups but extended to other ethnic groups. The shift of social interest is influencing the present condition of *adat* both directly and indirectly.

A *tokoh adat* was usually a lifelong-village-based person, but nowadays one should also have some job experiences like elementary schoolteacher. It is because one should recognize the general knowledge and experience outside village for to correspond to the changing and diversifying way of life because these change and diversifications also affect the way of practicing *adat*. Few *tokoh adat* manage many life cycle rituals of villagers so they are very busy but paid little except for well reputed one, and paid less proportional respect for their heavy work. This is also a

reason of difficulty of the recruitment.

Each *tokoh adat* manages many life cycle rituals of villagers so they are very busy but paid little except for well reputed one, and usually paid less proportional respect for their heavy work. This is also a reason of difficulty of the recruitment.

The successor dilemma is also related to the dilemma of succeeding the *adat* knowledge. One would think the books above is useful for to gain *adat* knowledge, but only essential matters are written in these books, therefore not enough for daily practicing. Detailed records of ritual verses, procedures of each ritual, necessities, arrangements, and so on are kept by each *tokoh adat* in private and such records are not shared usually.

It is expected more difficulties for recruitment in the near future because younger generations go out from their villages for job opportunities as mentioned above, so they cannot take part in rituals constantly and cannot gain enough experience and knowledge. This means that there are not so many experienced candidates for *tokoh adat* and as one recruit candidates personally, candidate may become fewer. Usually, the style of succession is "from the older to less old," therefore, one cannot work as *tokoh adat* for long time, owing to some *tokoh adat*, it is about 5 to 10 years.

Conclusion

The dilemma of succession of a custom is not only for the Lampung, but for any other ethnic societies. Once a customary knowledge was acquired unintentionally in their daily life, but now one should intentionally try to acquire it. If we see the current situation Indonesia, a custom may survive in limited arena as a cultural norm and ethics for kin and neighbors. One cannot avoid the qualitative changes of *adat* and *tokoh adat*. It may cause a great mistake if we try to salvage an *adat* as an immutable traditional system of a society and to impose the reservation on people because the key nature of an *adat* is its flexibility to meets with the times, and people also have their right to change their life.

As a temporary conclusion, we can say that the establishment of an effective succession framework of practitioners and customary knowledge is the key for the sustainability of customary society.

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The logo for the International Association of Agricultural Economists (iafor) is centered on the page. It consists of the lowercase letters "iafor" in a light blue, sans-serif font. The text is enclosed within a circular graphic composed of two overlapping, thick, curved lines. The upper-left portion of the circle is a light red color, while the lower-right portion is a light blue color, matching the text.

Assessment and Filling of Gaps of the Anti-Dengue Program in the Philippines

Judilynn N. Solidum, Gilmore G. Solidum

University of the Philippines, Philippines

0632

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Abstract

Dengue outbreaks have claimed lives of Filipinos. It has no specific treatment yet but can be prevented and controlled. The Philippine Department of Health is continually doing its program to prevent Dengue and control it. This study generally aimed to assess the gaps in the management of programs against Dengue in the Philippines. Specifically it aimed to identify the level of knowledge, attitudes and practices of chosen communities to dengue and its control; assess the gaps of the program based on the survey and perform post-evaluation on gap filling activities. The study followed a descriptive, exploratory research design for obtaining knowledge, attitudes and practices of the community residents. A survey questionnaire was used. The gap/s in the Dengue Prevention Management (DOH ABKD) in the community was analyzed using the resultant descriptive statistical analysis. An experimental design was employed for gap filling phase of the study. Majority of the respondents are well informed regarding Dengue, Dengue prevention and Management. The program of DOH to local community provided essential information to the community residents. A gap on information dissemination to children in the elementary level was identified hence tried to fill up. Lecture-storytelling teaching strategy showed an extremely significant statistical difference from the pre to the post tests of the students. Hence knowledge on Dengue, its prevention and management was increased with the use of the above mentioned teaching style.

Introduction

Background of the study

The dengue virus infection is the most common arthropod-borne disease worldwide [1] (Day-Yu Chao, 1998) It is a disease that claimed lives even in the Philippines. Mosquito borne disease transmission is climate sensitive for several reasons namely: mosquitoes require standing water to breed, and a warm ambient temperature is critical to adult feeding behaviour and mortality, the rate of larval development and speed of virus replication [2,3,4]. With cold climate, the disease will not propagate due to slowed viral development [4].

Other factors may also affect the prevalence of dengue. These include wooden housing, absence of screens on windows or doors, existence of mosquito breeding sites on the premises like Empty containers in the house, empty houses or ponds around the dwelling and presence of domestic animals [1]. Further it was mentioned that social and environmental factors – including increased urbanization (particularly of poor populations lacking basic health services) as well as expansion of international travel and trade – are linked to the resurgence of dengue disease [5].

The Philippines ranked 4th in the list of Association of Southeast Asian Nations (ASEAN) member-countries afflicted by dengue in 2011 [6]. There was a 16% rise in Dengue cases still only on July 26, 2012 as reported by the Philippine Department of Health (DOH). The cases were highest in Metro Manila followed by Calabarzon then Central Luzon. The DOH National Epidemiology Center also reported that 53% of dengue patients were male. Many of the patients were children and 40% belong to the age bracket of 1-10 years of age (bracket of 1-10 years of age)[7]

The Philippine Department of Health is active in its ABKD (Aksyon Barangay Kontra Dengue) program to destroy Dengue. It is an interagency cooperation strategy. It is the government's response to reduce Dengue cases and control transmission of Dengue. One of the key initiatives to the ABKD is the installation of Ovicidal/Larvicidal Trap system to trap Aedes mosquitoes and to act as an early warning signal in prevention of Dengue outbreaks. From the DOH the program goes down to the Barangay levels. Each Barangay must intensify clean up drives, conduct campaigns on the use of OL traps to control and prevent Dengue outbreaks together with the City or Municipal Health Office, distribute the OL traps through the Barangay Health Team to the identified distribution centers for free. The City or Municipal Health Office is also mandated to conduct training and orientation relative to Dengue prevention and control and provide funds to sustainably support the ABKD program. Further they monitor health situation, provide Dengue patients with proper and timely medical attention, provide data to partner agencies of Dengue cases [8]

The Philippine Department of Health-Center for Health Development (DOH-CHD) Caraga intensified its campaign against dengue through the implementation of the Aksyon Barangay Kontra Dengue (ABKD) program. The intensification according to DOH-CHD Caraga's Regional Epidemiology and Surveillance Unit (RESU) Chief Dr. Gerna Manatad was due mainly to the increasing number of dengue cases in the region. The program includes the regular daily clean-up drive by stakeholders and the re-assessment of the situation and an extension of the clean up drive, when deemed necessary. It is basically a "search and destroy" scheme for mosquito breeding sites. She informed the public to seek early consultation for fever, joint pains, and other early signs of dengue hemorrhagic fever such as nose and gum bleeding, blood in the stool, vomitus, and abdominal pain, among others. Fogging should also be done in Dengue hot spots [9].

As early as May 2011, Quezon City through the leadership of Mayor Herbert Bautista intensified its campaign against Dengue. It was emphasized that aside from information and education campaigns, cleanup drives and early illness detection training, barangay officials were also provided saplings of the Neem tree, to repel mosquitoes. Dengue brigades have been formed at the barangay level. The community residents were informed on the importance of maintaining cleanliness and sanitation to reduce the number of potential breeding grounds for the dengue-carrying mosquitoes. Residents then remove stagnant water on old tires, roof gutters, refrigerator drainers and indoor plants where these mosquitoes thrive [10]. This is a continuing campaign attested by Quezon City Health Department Director Dr. Antonieta V. Inumerable, in an interview last May 2013.

Storytelling as a teaching strategy activates students' mental process, imagination and interest which results to better understanding and recall of the information [11]. Telling stories is a valuable teaching skill. It is both entertaining and educating. It teaches important concepts, attitudes and skills [12]. Also the use of stories enhance values and character education among students in the middle school in USA [13]

It was mentioned that knowledge is affected by education but is not correlated with use of prevention measures. Also the best source of knowledge on dengue comes from the TV and radio [14]. Fortification of knowledge and community attitude on dengue is vital for its prevention.

Objectives

It generally aimed to assess the gaps in the management of programs against Dengue in the Philippines. Specifically it aimed to : 1. Identify the level of knowledge, attitudes and practices of chosen communities to dengue and its control, 2. Assess the gaps of the program based on the survey 3. Perform post-evaluation on gap filling activities.

Significance of the study

The results of this study will be significant to different Philippines sectors. To the Filipino people, Dengue fever occurrences will be decreased if not put on halt which plagues the Filipino community. This will reduce the economic burden placed on every household. To the Local Government Units or LGU's, they will be guided in decreasing dengue mosquito population and dengue fever outbreak through the data bank that will be left with them- storybooks with lecturette powerpoints on dengue prevention and management) that may be used by varied sectors (eg educators, Barangay Health Workers, community health team.). To the Government, the results may serve as guide in drafting and implementing of local/national policies related to socio-environmental factors that positively affect the rise in dengue in order to improve public health conditions. Change in strategies for solving the dengue problem in the Philippines may ensue and which may prove beneficial to the country at large. Lastly for researchers/academicians, it will serve as a motivation for continued quest for the improvement of socio-environmental conditions through further researches to reduce Dengue outbreak.

Methodology

Research design

The study followed a descriptive, exploratory research design for obtaining knowledge, attitudes and practices of the community residents. The survey questionnaire was adapted from Shuaib et al, 2010(Appendix A) [14] was used. The gap/s in the Dengue Prevention Management (DOH ABKD) in the community was analyzed using the resultant descriptive statistical analysis. An experimental design was also employed for gap filling phase of the study.

Locale of the Study

The study was conducted in a hot spot in Metro Manila, Philippines- Barangay Old Balara, Quezon City. The pre-identified areas were Area 1-Luzon, Area 2-Old Balara and Area 4- Sitio Payong. The gap filling phase of the study was conducted at Old Balara Barangay Elementary School in Quezon City and Jesus the Loving Shepherd in Camsur, Bicol.

Data Collection

Fifteen families per cluster were randomly selected. Both the father and the mother or the oldest persons in each family were requested to answer the formulated survey questionnaire on demographics and the segment related to the roles of health professionals and workers. They were asked to tick their corresponding answers per row and column combination. Grades V and VI students (N=291) of Old Balara Elementary School (Public) in Quezon City were the audience for the Dengue ReMoVe Information drive using lecturette-storytelling as the teaching strategy while mixed grades IV to VI (N=41) took part in the same activity in Jesus the Loving Shepherd College (Private) in Camsur, Bicol. Pre-tests and post tests were given to all students. Original storybooks (Appendix B for the storybooks) with lecturettes were used.

Data Analysis

Descriptive statistics was used to analyze the knowledge, attitudes and practices of the community respondents as well as the gap/s. Two tailed t-test was employed to see the effectiveness of the strategy used to fill in the perceived gaps.

Results

On Demographics

More than a third (34%) of the population surveyed was between the ages 31 to 40 years of age. The next biggest group was those within the 41 to 50 age range. The 21 to 30 age group accounted for more than a fifth (21%) of the respondents. Those over 51 years old were a little over a tenth of the respondents (11%) while those below 20 years old accounted for only 2%. Since this study targets the sector of the community that has direct responsibility for dengue prevention and control, those belonging to the 21 to 50 years old range are considered vital. It is therefore expected that most of the surveyed population belonged to this age range. Majority of the respondents are female (56%). The rest, are men (44%).

Several inferences could be made in relation to this data. First, since the survey was done within regular working hours (8 AM to 5 PM), it will be safe to say infer that many women, who stay home most of the time, were available. Second, women, who we know are directly doing the care giving role in the family, seem to be more cooperative in endeavors such as this. A great majority of the respondents are married. This is desired as this study wishes to determine the knowledge, attitudes and practices of people in the community particularly how families view with dengue and its prevention.

Majority (60%) of the respondents are unemployed. About a quarter (24%) engage in occupation or job that require no skill (e.g., vendor, laundry worker). Five percent of the respondents are skilled while 11% are professionals. This poses a challenge to any attempt to effect change in the health behavior of the populace. The cost effectiveness of the health program should be clear to the community members so they will involve themselves in the program. Low cost but high impact activities should be planned out well.

Almost half (46%) of the survey participants are high school graduates. About a quarter (23%) are college level students and almost the same number (24%) are elementary graduates. This table is quite different from the national picture where there are more elementary graduates than high school graduates. This poses a challenge to the project proponent in a way that all health education activities should be in a level understandable to all sectors.

On Knowledge on Dengue Symptoms

Regarding the population's knowledge on Dengue, the people are cognizant of the fact that one of the tell-tale manifestations of Dengue is fever. This question though did not ask the respondents to differentiate the fever in Dengue with that of other diseases which have a similar manifestation. There are only a few individuals who are not cognizant that a person suffering from Dengue experience headache. A big portion of the respondents (88%) are aware that Dengue presents itself as flu. A very small percentage(4%) stated that Dengue does not produce joint pains while the rest of the respondents are not sure. Almost $\frac{3}{4}$ of the respondents know that Dengue causes muscle pains while almost a quarter indicated that Dengue doesn't cause muscle pain or are not aware it does. The respondents are not quite informed on whether Dengue causes pain at the back of the eyes. Forty four percent indicated it does while 66% said either no or are not aware that Dengue causes eye pain. Forty percent of the respondents say that Dengue causes itchiness. The rest knows that Dengue patients do not experience itchiness or are not sure if it does. A big majority of the respondents know that Dengue patients experience stomach or abdominal pain.

On Dengue Transmission

Majority of the respondents know, that Dengue is not brought about by flies. However, 20% of the respondents who either say that Dengue is transmitted by flies or are not sure is worth noting as they still have misconceptions regarding Dengue despite the saturated information dissemination by many sectors concerned with Dengue prevention and control. Majority of the respondent know that Dengue is not transmitted by ticks and not all mosquitoes transmit the Dengue virus. The respondents are however not well-informed on the type of mosquito that transmit the Dengue virus as only 33% answered the question correctly. Almost 40% indicated that they are not aware whether Aedes causes Dengue. They are not well-informed on the manner by which the Dengue virus is transmitted as only 35% answered the question correctly. Almost 40% indicated that Dengue is not transmitted from human to human. A quarter said they are not aware.

The respondents are not well-informed on the manner by which the Dengue virus is transmitted. 43% claimed that the Dengue virus can be transferred via blood transfusion. 33 % indicated that the Dengue virus is not transmitted through blood transfusion. Less than a quarter of the respondents are not sure . Almost half of the respondents know that Dengue cannot be transmitted via injection. Majority knows that Dengue is not sexually transmitted.

On General Knowledge on Dengue

Most of the respondents know that the dengue mosquito bites in the morning and both morning and evening. Almost the entire respondents know that the dengue mosquito multiply in stagnant water. Majority of the respondents know that putting screen, mosquito nets and insecticide spraying reduce the number of mosquitoes Majority of the respondents know that covering water containers and removing stagnant water reduce the number of mosquitoes. Majority of the respondents know that using mosquito repellants drives away mosquitoes, trimming of well grown plants and pouring chemicals in stagnant water can kill mosquito larvae hence reduce mosquitoes. Also majority believe that fogging can kill mosquito larvae hence decrease dengue outbreaks but that majority is not aware that fogging has harmful effects. Only a quarter says that fogging can produce harmful effects. Only a small percentage indicated that Dengue incidence increases after fogging. Almost half are uncertain. Many are uncertain whether Ovi traps lessen the number of dengue mosquitoes. A factor that should be looked into is whether the people in the community know what an Ovi trap is. Many are uncertain whether Ovi traps lessen the number of dengue cases. Again it may be because the people do not know what an Ovi trap is.

Most of the respondents know that medical attention should be sought for Dengue. The respondents also know that aspirin should not be taken with Dengue. This information is very important as aspirin could contribute to bleeding among patients suffering from Dengue.

Table 1 below shows us the sources of information related to dengue. It can be seen that television is the most significant source of information with regards to dengue. Information is also secured from health workers. Newspaper is the least source of information about dengue. This table also shows that parents do not get information about Dengue from their children.

Table 1 Sources of Information Related to Dengue

| | Yes | No | Not aware |
|----------------|-----|-----|-----------|
| TV | 96% | 4% | 0% |
| Radio | 88% | 12% | 0% |
| School | 84% | 12% | 4% |
| Health workers | 93% | 7% | 0% |
| Mass meetings | 71% | 29% | 0% |
| Loud speaker | 76% | 23% | 1% |
| Brochure | 72% | 28% | 0% |
| Neighbors | 63% | 37% | 0% |
| Child | 52% | 48% | 0% |
| Newspaper | 44% | 56% | 0% |

Attitude towards Dengue

Majority of the respondents believe that Dengue is dangerous (99%) and a person suffering from Dengue is placed in a perilous condition (95%). However, many believe that dengue can be prevented (97%).

On Practices related to Dengue Prevention

Many respondents practice the following in lessening dengue-causing mosquitoes: using insect spray, asking professional help, putting screen in windows, using mosquito nets, using mosquito coils, removing stored water, trimming bushes and lush areas. Half of the respondents use mosquito-eating fish.

The community respondents said that DOH linked local government programs are exhaustive in their area since it is a hotspot in Metro Manila, Philippines. That explains their generally good knowledge on Dengue, its prevention and management except for their uncertainty of the effectiveness of ovi/larvi trap which must be assessed by the DOH. Sources of information related to Dengue also abound. However, information from children to parents are low at 52% relative to TV at 96%. It is presumed that if children would be able to learn measures to prevent and manage Dengue, other children will learn from them and their own household members will also be informed. The best way to teach children is by making them enjoy the lessons on Dengue. Lecturette-storytelling was employed to inform children from Old Balara Elementary School (Urban Dengue hot spot location) and Jesus the Loving Shepherd College in Camsur (Low Dengue incidence rural location).

From the May 2012 interview with Dr. Antonieta V. Inumerable, Quezon City Health Department Director, she mentioned that massive campaigns to prevent rise in Dengue outbreaks have long been in place in Quezon City and is still continuing. The exhaustive information dissemination to adults showed in the good results from the survey given to Old Balara community. She revealed that there are no specialized information campaign for children which was also reflected in the answers to the survey given. The gap on the lack of information drive among children in Dengue prevention and control then was filled by using lecturette-storytelling teaching strateg. The activity was administered to elementary students in the chosen urban Dengue hot spot community, Old Balara Elementary School. It was also administered to a rural Dengue non-hot spot community in Camsur, Bicol-Jesus the Loving Shepherd College.

By using paired two tailed t-test, it showed that the difference of the means for the pretest of Grades V and VI (am,pm section) of Old Balara Elementary School are extremely statistically significant (Table 2) from the means for the post test. The children got higher scores after employing the lecturette storytelling teaching strategy as opposed to the lecture only teaching strategy from where their pretest knowledge on Dengue came from.

Table 2 T-test result of Grade V Morning Section of OBES

| Group | Pre test | Post test |
|-------|----------|-----------|
| Mean | 14.71 | 17.31 |
| SD | 2.19 | 5.24 |
| SEM | 0.25 | 0.6 |
| N | 77 | 77 |

t=4.3210
 df=76
 standard error of difference=0.601
 mean pre test and post test difference= -2.60
 95% confidence interval of the difference is at -3.79 to -1.40
 Two tailed p value is less than 0.0001 thus extremely statistically significant

Table 3 T-test Result of Grade V Afternoon Section of OBES

| Group | Pre test | Post test |
|-------|----------|-----------|
| Mean | 15.22 | 18.47 |
| SD | 2.38 | 3.09 |
| SEM | 0.31 | 0.40 |
| N | 59 | 59 |

t=9.3202
 df=58
 standard error of difference=0.349
 mean pre test and post test difference= -3.25
 95% confidence interval of the difference is at -3.95 to -2.56
 Two tailed p value is less than 0.0001 thus extremely statistically significant

Table 4 T-test Result of Grade VI Morning Section OBES

| Group | Pre test | Post test |
|-------|----------|-----------|
| Mean | 16.93 | 20.94 |
| SD | 2.00 | 3.11 |
| SEM | 0.22 | 0.34 |
| N | 84 | 84 |

t=11.6912
 df=83
 standard error of difference=0.343
 mean pre test and post test difference= -4.01
 95% confidence interval of the difference is at -4.69 to -3.33
 Two tailed p value is less than 0.0001 thus extremely statistically significant

Table 5 T-test Result of Grade VI Afternoon Section of OBES

| Group | Pre test | Post test |
|-------|----------|-----------|
| Mean | 16.38 | 21.48 |
| SD | 2.49 | 2.25 |
| SEM | 0.3 | 0.27 |
| N | 71 | 71 |

t=15.0249
 df=70
 standard error of difference=0.339
 mean pre test and post test difference= -5.10
 95% confidence interval of the difference is at -5.78 to -4.42

Two tailed p value is less than 0.0001 thus extremely statistically significant

By using paired two tailed t-test, it showed that the difference of the means for the pretest of mixed grade students from Camsur are extremely statistically significant from the means for the post test. The children got higher scores after employing the lecturette storytelling teaching strategy as opposed to the lecture only teaching strategy from where their pretest knowledge on Dengue came from.

Table 6 T=test Result of Mixed Grades (IV to VI) of Camsur

| Group | Pre test | Post test |
|-------|----------|-----------|
| Mean | 15.37 | 19.68 |
| SD | 3.18 | 4.33 |
| SEM | 0.5 | 0.68 |
| N | 41 | 41 |

t=7.8589

df=40

standard error of difference=0.549

mean pre test and post test difference=-4.32

95% confidence interval of the difference is at -5.43 to -3.21

Two tailed p value is less than 0.0001 thus extremely statistically significant

Based on the gap filling activities it was observed that children in both public and private, Dengue hot spot and non-hotspot understood and recalled the concepts on Dengue, its prevention and control through the lecturette-storytelling strategy than the previous regular school based lecture alone.

Conclusions

Majority of the respondents are well informed regarding Dengue, Dengue prevention and Management. The programs of the DOH and the local community provided essential information to the community residents. A gap on information dissemination to children in the elementary level was identified hence tried to fill up. Lecturette-storytelling teaching strategy showed an extremely significant statistical difference from the pre to the post tests of the students. Hence knowledge on Dengue, its prevention and management was increased with the use of the above mentioned teaching style.

Recommendations

It is recommended that lecturette-storytelling teaching strategy on the prevention of Dengue outbreaks be used continuously in all schools, both public and private, in Quezon City as Metro Manila Dengue hot spot and in other schools in the Philippines. It is suggested to be incorporated in elementary science curriculum as endorsed by the Philippine Department of Education. A follow on survey on the effect of the above said teaching strategy to household knowledge on Dengue will be assessed. The exhaustive DOH program ABKD should be continued with emphasis on the effectiveness of Ovi/Larvi trap.

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APPENDIX A

Questionnaire for Sources of knowledge on Dengue; Sociodemographics, Knowledge, Attitude and Practices on Dengue and its control (subject to Filipino translation)

Sociodemographics

Name

Age

Gender

Status

Single

Married

Divorced

Widowed

Common law

Address

Occupation

Unemployed

Unskilled/vendor

Semi skilled

Skilled

Professional

Educational Attainment :

Elementary

High School

Vocational

College

Post Graduate MS

PhD

Knowledge on Dengue

Knowledge of symptoms

Yes No

Is fever a symptom of dengue

- Is headache a symptom of dengue fever(DF)
- Is joint pains a symptom of DF
- Is muscle pains a symptom of DF
- Is pain behind the eyes a symptom of DF
- Is rash a symptom of DF
- Is abdominal pains a symptom of DF

Knowledge of transmission

- Do flies transmit DF
- Do ticks transmit DF
- Do all types of mosquitoes transmit DF
- Does Aedes mosquito transmit DF
- Does person to person contact transmit DF
- Can DF be transmitted by blood transfusion
- Can DF be transmitted by needle stick
- Can DF be transmitted by sexual intercourse

When are Dengue Mosquitoes (DM) likely to bite

- Night
- Day
- Both day and night
- Don't know

Yes No

- Dont know
- Mosquitoes breed in standing water
- Window screens and bed nets reduce mosquitoes
- Insecticide sprays reduce mosquitoes and thus prevent DF
- Covering water containers reduce mosquitoes
- Removal of standing water can reduce mosquito breeding
- Mosquito repellent prevent mosquitoes
- Cutting down bushes can reduce mosquitoes and dengue
- Pouring chemicals in standing water can kill mosquito larvae
- Use of fogging decrease DM
- Use of fogging decrease DF
- Use of fogging resulted to adverse effects
- Use of fogging resulted to higher incidence of DF
- Use of ovi trap decrease DM
- Use of ovi trap decrease DF
- Use of ovi trap resulted to higher incidence of DF

Yes No

Don't know

Knowledge on Management

- Would you take aspirin for DF
- Would you get plenty of rest for DF
- Would you drink plenty of water for DF
- Is there a treatment for DF
- Would you consult a physician for DF

Sources of knowledge

Yes No

TV
Radio
School
Health workers
Mass meetings
Loud speaker
Brochure
Neighbors
Child
Newspaper

Attitude towards dengue

Strongly agree Agree Disagree Strongly Disagree Not sure

Dengue is a serious illness
You are at risk of getting dengue
DF can be prevented

Preventive practices against dengue

Yes No

Preventing mosquito –man practice

Use insecticide sprays to reduce mosquitoes
Use professional pest control will reduce mosquitoes
Use screen windows to reduce mosquitoes
Use bed nets to reduce mosquitoes
Use mosquito-eating fish to reduce mosquitoes
Use mosquito coils to reduce mosquitoes
Eliminate standing water around the house to reduce mosquitoes
Cut down bushes in the yard to reduce mosquitoes
Does nothing to reduce mosquitoes

Always Often Sometimes Never

Eliminating mosquito breeding sites

Covered water containers in the home
Frequency of cleaning water filled containers around the house
Frequency of cleaning water filled ditches around the house

(Shuaib, F et al, 2010).

*Reflection on Grammar Teaching Textbooks and the Underlining Approaches for
Further Development: The Case of Teaching English as a Foreign Language*

Jirapa Abhakorn

National Institute of Development Administration, Thailand

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Abstract

Although a wide range of theories and approaches for teaching grammatical rules of English have been extensively discussed in the research on English as a Foreign Language (EFL) pedagogy, the most convenient approach applied by the language teachers seems to be textbook-based. Yet, little has been done to analyze grammar textbooks and their underlying pedagogical theories. In addition, studies on teacher cognition and reflection on grammar teaching materials have had little attention from the researchers in this field. This paper, therefore, has its main aim to demonstrate a critically reflection on the teaching materials of English grammar from a focus group discussion of Thai EFL teachers. The study investigated the extent to which the teaching materials suit the grammar teaching in the Thai EFL classroom context, and developed a revised version of the sample material. The revised activities allow the students to approach learning of grammar explicitly before practicing with repeated data input, individual tasks, and pair-discussion exercises. The results contribute to reflective thinking and material development skills in teacher training programs.

Keywords: Reflective thinking, English as a foreign language, Grammar teaching, Textbook analysis, Materials development

1. Introduction

The theories which explain the nature of language and language learning have changed in their core beliefs over the past few decades. This change has also reflected changes in the aims of language teaching and learning, the roles of teacher and learner, the classroom activities, the concept of grammar, and the role of grammar in English as a foreign language (EFL) instruction. Since each of the approaches to grammar teaching has its advantages and disadvantages, the effectiveness of implementing the teaching approaches depends on how well the teacher can organize the teaching to suit the learner and the classroom context. However, most EFL teachers generally organize their teaching approaches following the textbooks developed by native speakers of English. Instead of only teaching by the textbook, EFL teachers should be able to reflect on the advantages and disadvantages of the textbook activities and develop a revised version to suit their classroom contexts. The aims of this article are: (1) to demonstrate teachers' critical reflection on the English grammar teaching materials and ways to develop new version of the material, (2) to examine the theoretical approaches underlying the textbook and their advantages and disadvantages for teaching EFL to Thai learners; and (3) to propose a revised version of the sample material to suit the nature of the Thai EFL classroom context.

2. Literature Review

Grammar instruction has been an aspect of English language teaching (ELT) research since before the 19th century. In the 18th century, there was no empirical theory about language and language learning. English language was taught using the same basic procedures that were used for teaching Latin. Grammar was viewed as prescriptive. In other words, the theorists prescribe what language ought to be. This approach to grammar is called traditional grammar (TG) and an example of the TG teaching methodology is called the Grammar Translation Method. A typical textbook in the mid-19th century thus consisted of chapters or lessons organized around grammar points. Each grammar point was listed, rules on its use were explained, and it was illustrated by sample sentences (Richards and Rogers, 2001: 4).

During the first half of the 20th century, behaviorism dominated education including the theory of foreign or second language (FL/SL) teaching. Grammar was viewed as a collection of language structures. Grammar learning was treated merely as imitation and memorization of the collections of grammar. The instruction took place through the process of imitation, practice, reinforcement, and habit formation. Language use was also tightly controlled in order to prevent students from making errors that could lead to the formation of bad habits. These instruction methods represent a prescriptive view of language. This approach to grammar is called structural grammar (SG). One of the examples of the SG teaching methodology is called the Audio-lingual Method.

By mid-20th century, Chomsky's (1967; cited in Stern, 1983) Transformational Generative Grammar (TGG) and his theory of Universal Grammar (UG) were being expounded. The TGG, in contrast to the behaviorist view and TG, recognizes language as a system governed by abstract rules. It emphasized the productive or creative character of language and saw language as non-static. Chomsky's UG perspective believed that 'target input alone or input with negative evidence, that is, evidence that a particular form is ungrammatical, might be sufficient to have learners reset the parameters of UG principles in order to reflect the differences between the native language and the target language grammars' (White, 1987; cited in DeCarrico and Freeman, 2002: 28). Thus, grammar learning, from the theories of Chomsky's TGG and UG, was seen to take place through a process of rule formation. Rule formation is the process through which students formulated, tested, and revised hypotheses about grammatical structures in the target language. Grammar teaching according to Chomsky's theories was conducted in the form

of repeated exposure to the natural target language. Explicit grammar teaching was diminished because fluency was deemed more important than grammatical accuracy. Some examples of this teaching approach are Krashen's (1982) comprehensible input hypothesis, and a strong version of communicative approach to language teaching.

Hymes in 1972 developed a functional model of grammar which focused mainly on appropriate use of language, that is, how language functions in discourse. In other words, while Chomsky focused on the form of grammar, Hymes focused on the function of grammar. Hymes suggested that Chomsky's generative grammar was not complete since grammar use in real life situations also needed to be considered. A central concern of functional grammar (FG) is the notion of Hymes' (ibid.) communicative competence, which emphasizes language as meaningful communication, including the appropriate use of language in particular social contexts. In other words, communicative competence includes not only knowledge of the language forms in Chomsky's sense, but also the ability to use language in various contexts (i.e., pragmatic competence). The teaching approach evolved from the FG perspective is still in the form of communicative language teaching which views language as a communication tool and tends to promote fluency over accuracy.

Current research in second-language acquisition (SLA), led to a reconsideration of the role of explicit grammar instruction in FL/SL teaching since the communicative language teaching by itself was found to be inadequate for teaching FL/SL skills. Communicative language learning alone does not help the learners to achieve accuracy in certain grammatical forms but it could lead to learners' lack of grammatical competence. Many researchers (see Ellis, 1990, 1997, 2002a; Larsen-Freeman and Long, 1991; Nassaji and Fotos, 2004) also suggested that, though explicit teaching of grammar may not have major effects on sequences of a FL/SL acquisition, it helps hasten the acquisition process development. Therefore, current approaches to grammar teaching emphasize both language form and meaning or functions. For example, Fotos (1994) introduced the task-based activity type which is called grammar consciousness-raising tasks. To complete these tasks, the learners are required to solve grammar problems through meaning focused interaction activities. The learners are given chances to discuss in FL/SL about grammar problems. Celce-Murcia and Larsen-Freeman (1999) proposed a grammar teaching approach which emphasizes the three dimensions of grammar which are form, meaning, and use. Some of these multitask-based activities are textual enhancement, structure-based production tasks, dictogloss, jigsaw tasks, and the grammar teaching *focusing on form* (Long, 1991), as opposed to the *focusing on forms*. In textbooks, however, grammar is generally presented without context. Therefore, students are not given the opportunity to see the systematic relation that exists between language form and meaning (Nunan, 1991). Since various approaches to language and grammar teaching have been proposed, teachers as active thinkers need reflective skills to critically evaluate textbooks and to develop materials that are suitable to their teaching and learning contexts.

3. The Study

This descriptive and interpretative research studies a sample of grammar teaching material through a text-based analysis and a focus group discussion. The teaching material was selected by the Thai Government to use for teaching EFL in Thai public high-schools nationwide. The group of three Thai EFL teachers was intentionally selected based on shared background of teaching experiences. All of them are now teaching first year secondary-school student in Thai schools. The research not only analyzes what the teaching material actually present for grammar teaching, but also explores the theoretical bases underlying the presentation of the teaching and learning activities. It also demonstrates teacher's reflective thinking on the teaching material and suggests

options for developing more appropriate materials for the Thai EFL learners. First, the textbook was critically analyzed in terms of: (a) presentation of grammar; (b) underlying pedagogical approaches described in the textbook; and (c) its advantages and disadvantages for teaching EFL to Thai learners. Then the revised version of the sample material which was believed to be more suitable for teaching grammar in the Thai EFL classroom context was developed and discussed.

3.1 The Textbook

A sample of grammar teaching material is chosen from *Postcards 1* (Abbs, Baker, Freebairn, and Reilly, 2005). This textbook is one of the set materials, that is, *Postcards 1-3*, *Postcards Workbook 1-3*, audio CDs for *Postcards 1-3*, which has been reviewed and selected by the Bureau of Academic Affair Education Standards of Thailand to be used for teaching English language to secondary school students in public schools of Thailand. The main aim of the textbook is to improve the ability to use English language in real life. Therefore, each unit of the book includes subunits or activities which aim to develop listening, speaking, reading, writing, communication, and cognitive skills, as well as activities that aim to teach vocabulary, pronunciation, and grammar. For this paper with its limited space, the author will only focus on the analysis of the grammar activities in unit 1 of the textbook.

3.2 The Selected Grammar Activities for the Article Presentation

For the grammar activities of unit 1, the grammatical features to be taught are subject pronouns and present simple tense of the verb *be* and its structures of affirmative statements, negative statements, and yes/no questions. The organization of this subunit consists of grammar focus boxes to describe the grammatical features, followed by the focused exercises to practice working with the grammatical features both individually and in pair. Appendix 1 illustrates the selected grammar activities.

3.3 The Target Learner

Postcards 1 is a textbook used for teaching first year secondary school student, who are 12 to 13 years old. In the Thai basic education system, English is a compulsory foreign language subject for Thai students ranging from elementary to secondary levels. English teaching and learning for Thai students according to the 1999-2010 National Educational Act is divided into four sublevels as shown in Table 1.

Table 1. Level of English Teaching and Learning for Thai Students

| Basic Educational Level | English Teaching/Learning Level |
|--------------------------------|---------------------------------|
| Level 1: Elementary years 1-3 | Preparatory level |
| Level 2 : Elementary years 4-6 | Beginning level |
| Level 3 : Secondary years 1-3 | Expanding level |
| Level : Secondary years 4-6 | Progressive level |

According to the Thai basic educational system, the English proficiency level of the target learner (Level 3) is a little higher than beginner. At this level, the students are starting to study basic grammatical features as well as basic vocabularies, pronunciation, and skills development.

The nature of the English classroom in secondary schools in Thailand is a large class with 40-50 students per class. The students share the same first language which is Thai, and the teachers use Thai almost 80-90% of the time in the classrooms (Foley, 2005: 231). At present, the Thai Government is trying to encourage the development of students' language proficiency to fulfill a number of purposes, such as communication, acquisition of knowledge, use of English in tertiary level studies, career advancement, and so on (Foley, 2005). As a result, the Government is trying to promote learner-centered teaching and learning as an approach to develop the students' critical thinking skills, and the ability to communicate in English effectively. However, the teaching and learning in many Thai EFL classes, as Jantrasakul (2004: 36) noted, predominantly emphasizes cognitive learning of grammatical rules with meaningless oral drill skills. Learning by memorization is strongly favored in the Thai context. The students believe that repeated practice automatically translates into learning and understanding. They are preoccupied with examinations and scores (i.e., instrumental motivations), but not personal preferences (i.e., intrinsic motivations) or willingness to communicate in English (i.e., integrative motivations).

4. Results: Teachers' Critical Reflections on the Sample Material

4.1 The Grammatical Feature Taught: Subject Pronouns, and Present Simple Tense of Verb to Be

In the selected sample unit of activities (see Appendix 1), the grammatical features planned for delivery to the students is the basic form of a present simple sentence. A sentence is generally divided into two main constituents: subject and predicate. The predicate consists of the verb and any other elements of the sentence apart from the subject (Greenbaum, 1991: 19). The main focus is only on the two constituents, which are subject pronoun, and verb *be*.

| |
|----------------------------------|
| Subject pronoun + Verb <i>be</i> |
|----------------------------------|

The present simple sentence form is presented in three different functions of statement: affirmative statements, negative statements, and yes/no questions. The affirmative statement is used to convey positive information, while the negative statement is used to transfer negative information. The yes/no question begin with a verb and it is used to elicit yes or no response. This requires what Greenbaum (ibid.: 101) called knowledge of subject-operator inversion, that is, the understanding of a reversal of the order of subject and verb (which is the normal order in the affirmative and negative statements). Table 2 shows the forms of present simple sentences to be presented to the target learners:

Table 2. Forms of Present Simple Sentences to be Presented to the Target Learners

| Affirmative Statements | | Negative Statements | | Yes/No Questions | |
|-------------------------------|--|-------------------------------------|-------|-------------------------------|---------------------|
| Subj pronoun + Verb <i>be</i> | | Subj pronoun + Verb <i>be</i> + not | | Verb <i>be</i> + Subj pronoun | |
| I | am (I'm) | I | am | am | I |
| He | } is (He's) (She's) (It's) | He | } is | is | { He She It |
| She | | She | | | |
| It | | It | | | |
| We | } are (We're) (You're) (They're) | We | } are | are | { We You They |
| You | | You | | | |
| They | | They | | | |

Note: Subj = subject

4.2 Underlying Pedagogical Approach of the Textbook

The original grammar activities, as shown in Appendix 1, start with the explicit description of the grammar rules. The students are required to memorize these rules first before moving onto the exercises. This means that the textbook follows the perspective of TG, which views grammar as prescriptive form. Grammar is also seen as consisting of constituent elements of sentence which the students have to learn and produce in an accurate form. The grammar rules are taught explicitly and deductively in a de-contextualized manner, and the students are expected to learn by memorizing these rules.

Following the grammar box are exercises 1 and 3. In these exercises the students are required to produce the instructed grammatical features in a written form at the sentence-based level. Some teacher participants agree that Exercise 2 gives students a chance to discuss with a partner and to answer the question. The focus here is on meaning, as well as forms, therefore, this activity has a characteristic of communicative activity to language learning. However, it is a controlled communicative activity. In other words, it 'provides students with a text or some sort of discrete sentences and require them to operate on it in a way that involves producing the target form' (Ellis, 2002b: 159).

Following the exercises, there are the less controlled communication activities. Activity 4(a) allows the students to have exposure to comprehensible input by listening to short dialogues containing the instructed grammatical features. All of the teacher participants notice that the activities are arranged from the more to the less controlled communication activities. As shown in the Activity 4(b) which asks the students to perform a role-playing task, this activity aims to encourage the students to practice using the features learnt to communicate orally, yet at the sentence-based level. Activity 5 shows that a somewhat higher level of communicative skills is required. It is more challenging for the students to produce the language orally because there are no clues provided and the students are expected to produce the structures learnt to answer to the questioning forms that they may not have learnt before, such as 'What's your favorite movie?', and 'Who's your favorite movie star?'

In summary, this selected sample grammar teaching material relies on the combination of first, traditional grammar approach and explicit grammar teaching, then functional grammar approach

and task-based activities. The organization of the activity is similar to Ellis's *et al.*'s (2002) *planned focus on form*. In such activities, they involve the use of focused task or communicative tasks that have been designed to elicit the use of a specific linguistic form in the context of meaning-centered language use (in Activities 4(b) and 5). The only different is that, rather than attending to the grammatical features incidentally, the students learnt about the grammar explicitly prior to using it into practice during the communicative activities.

4.3 Critical Analysis of the Sample Material and the Underlying Pedagogical Approaches

There are advantages and disadvantages that most of the teachers are agree and disagree on which can be grouped into separate paragraphs as shown below.

The advantages: The explicit instruction of grammar is suitable for the Thai EFL classroom context where both teachers and students have learnt English through the traditional way of teaching pre-specified language features explicitly, and communicative language teaching is just beginning to become an instructional option. This is similar to Fotos (1998) when the author suggested that, 'whereas a focus-on-form approach is used to position grammar instruction within an existing communicative framework, in the EFL context it provides a strong rationale for introducing communicative language activities into the grammar classroom' (304).

Since the target learners are young learners and their level of English proficiency is slightly higher than beginner, and since the present simple sentence form and application is not complex, explicit grammar teaching can help them understand the grammar rules easily and is less time consuming in comparison to the implicit type of teaching. In addition, since one of the goals for EFL learning is to pass the examination, explicit grammar teaching is believed to be one of the efficient methods for teaching EFL for Thai learners. This is because the teacher can organize the grammatical content that is suitable for the students' level of accessibility, and plan an appropriate path of progress for the students. This follows Pienemann's (1984; cited in Ellis, 1997) teachability hypothesis of SLA, or 'the hypothesis that teaching learners a grammatical structure will only be successful if they are developmentally ready to learn it' (144).

The communicative activities in a form of *focused-tasks* (Ellis *et al.*, 2002) help fulfill the Thai Government's need to develop Thai EFL learners' ability to communicate in English effectively. Thai students have limited opportunity for communicative use of the target language outside of the classroom, or even inside the classroom where the teacher uses the first language (L1) as a medium of instruction. Therefore, these communicative activities provide opportunities for the students to speak English in the classroom, and to engage in meaning-focused interaction where they must both comprehend and produce the target language.

When the student performs the focused tasks, the language forms are expected to be noticed and learnt through interaction, while the primary focus is on communication for meanings. The controlled communication task is aimed to ensure that students practice new language structures in a variety of contexts to help them internalize and master language features and, in particular, to ensure that there are plenty of opportunities to use the features in communicative activities (Ellis, 2002b: 163). The learners are, therefore, expected to function primarily as language user rather than as learners when they perform the tasks.

Richards (2002) noted that 'it appears to be a real danger of leading students too rapidly into the creative aspects of language use such as the pure communicative language teaching' (38) or an unstructured or 'free' conversational setting before certain fundamental linguistic structures are more or less in place. Therefore, the combination of explicit grammar instruction with communicative activities provides advantages to the learners in many ways. As Fotos (1998)

states, explicit instruction, prior to performing the activity, helps activate learners' previous knowledge of the target structures or, if none exists, to facilitate awareness of the forms they will encounter. Schmidt (1990; cited in Fotos, 1998) also pointed out the positive relationship between formal instruction and language acquisition, that after awareness of grammatical structures (i.e., explicit knowledge) has been developed by formal instruction, many learners tend to notice the target structures in subsequent communicative input. The repeated act of noticing tends to help learners to bridge the gap between their inter-language forms and the correct forms, and restructure their internal linguistics system, and thus facilitate acquisition (i.e., implicit knowledge)

The disadvantages: There are only few limitations of this sample material to teaching grammar to Thai EFL learners. In the first part of the unit, it contains somewhat little repeated meaning-focused exposure to input containing the instructed grammatical features, and the pictures included may be unauthentic or irrelevant to the Thai students.

However, it can be improved in a number of ways to make it more effective and interesting for grammar teaching. First, comprehensible input (e.g., dialogues with clues) and enhanced input (e.g., boldfacing) can be putted before the description of grammatical features, to give opportunities for the student to notice language structures and applications for themselves.

Second, the pictures (in activity 2) should be changed to include pictures that students are more familiar with and interested in, so that they would have some motivations to perform the activity. Third, in activity 3, the teacher should ask the learners to work with a partner to solve grammatical features problems. Although Thai learners may be confrontation avoidance, according to Jantrasakul (2004), they have a strong inclination to work towards common goals and value cooperative learning in which they help and support each other. As mentioned earlier, discussion about language form with the partner can help create opportunity for negotiation of form (Ellis, 1997). Fourth, since more than one grammatical features are presented in the selected activity, the teacher should teach them to the students together with teaching the knowledge that 'different forms enable them to express different meanings, that grammar allows them to make meanings of increasingly sophisticated kinds' (Nunan, 1998: 103).

This method of teaching the form and the use of form is similar to Freeman's focus on form (Larsen-Freeman, 1991: 280) as shown in Figure 1. There are three dimensions of language that must be dealt with: the form, the meaning, and the pragmatic conditions governing their use. Different forms are used in different conditions and convey different meanings.

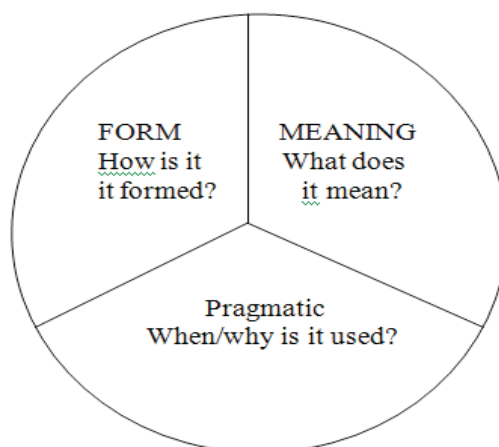


Figure 1. Larsen-Freeman's Three-Dimensional Grammar Framework

In the selected grammar teaching material, the forms, meanings and pragmatics of the instructed grammatical features should be explained as follow:

1. The forms describe subject pronouns and present simple tense *be*: (a) short form and (b) long form.
2. The meanings explain affirmative, negative, yes/no question, affirmative and negative answers.
3. The pragmatics emphasize (a) the subject pronoun I is always a capital letter, (b) the long-form is used in a formal situation, while short-form is used in an informal situation, (c) when answer a yes/no question with a negative answer, it is polite to offer additional information, (e) do not use short-form with an affirmative answer.

To improve the material, authentic pictures or dialogues can be used to relate forms and meanings. The caution boxes can be added to emphasize the right form of a grammatical feature to convey the right meaning in a particular context. The revised version of the selected unit activity was developed based on these comments and the discussed theories.

5. Discussion

5.1 *The Revised Version of the Sample Material*

This section discusses the revised version of the grammar teaching activities in the selected textbook, as shown in Appendix 2. This version consists of the following activities. First, (activity 1 and 2) the students listen to a dialogue which includes the planned grammatical features to be taught, followed by the comprehension activity which includes enhanced-input, such as boldfacing of the grammatical features (e.g., *is*, *are*). These activities aim to promote learners' motivation and language structures noticing. Motivating learners noticing of structural regularities and formal properties of the target language will greatly increase the rate of language attainment. The cartoon in the dialogue can also be useful as noted by Celce-Murcia and Hilles (1988; cited in Larsen-Freeman, 1991), who stated that when dealing with the semantic dimension, pictures are very useful.

Second, learners' noticing is enhanced by the teacher's explicit teaching of the language features or grammar focused activities. The explicit teaching of language forms is necessary for language learning because implicit exposure alone may not be enough for acquisition to take place, especially for beginners. Learners also need to pay conscious attention to notice the grammatical features in the input in order to make progress in the acquisition developmental process.

Third, (activity 3) learners listen to the same dialogue again, this time for repeated noticing of the instructed language structures. Then, they work individually to fill in the structures learnt, which are short forms of subject pronouns and the verb of *be*.

Fourth, (activity 4) learners are moving up the level of task difficulty, and work with their partners to finish the task. This task is left unedited from the original textbook, except for the pictures which are changed to include pictures of people from different professions. The new pictures are expected to gain the attention of students through different styles and preferences, and hence to motivate them to do the task. Above activities 3, 4, and 5, there are the caution boxes which aim to highlight correct ways of using the language structures to the student.

Fifth, (activity 5) the students are still required to work with their partner. Yet, in this revised version, it aims to achieve the focus on the form (Ellis, 1997). The taught grammatical structures are the content of the discussion task. The learners must use the target language meaningfully to complete the activity and to solve the grammar problems. Fotos (1998) suggested that ‘the necessity to write English sentences and agree upon grammar rules helps promote communicative use of the target language, even though the learners speak the same L1’ (306).

Sixth, activity 6 and 7 are kept unchanged from the original textbook, as they are already useful in terms of developing meaningful and challenging practice without using verbatim repetition of the language structures. Thus, the students would receive abundant practice in forming the questions and the questions they produce are meaningful. However, the author would suggest that, in the practice of teaching EFL in Thai classroom context with its large class sizes, the teacher should work closely with each group of students to enable them to use English, and to use it in the accurate form. Williams (1999, cited in Ellis, 2002a) also found little evidence of attention to form during the communicative group work in elementary and intermediate level learners, except when the teacher joined a group. Therefore, the intervention of the teacher is suggested. Perhaps at later time a remedial lesson could be prepared to address common errors that a teacher notes during the communicative group work (Nassaji and Fotos, 2004).

5.2 The Underlying Pedagogical Approach of the Revised Version

The theory underlying the improved version is still a combination of the traditional approach to grammar teaching and the task-based method. However, the material is revised by adding the dialogue and cartoon (activity 1) which contains the target structures at the beginning of the taught unit. The author names this activity a semi-inductive teaching activity. This name is given because the main aim of this activity is not to purely encourage the learners to induce the grammar rules. Instead, it aims to promote learners’ motivation and noticing of the target structures, prior to the explicit instruction. According to Ellis (2002b), there are a number of advantages of inductive teaching: (1) it is potentially motivating than simply being told a grammatical rule and, for this reason, students may be more likely to remember what they learn; (2) it can encourage students to form and test hypotheses about the grammar; (3) it can lead to powerful insights about the grammar of a language that cannot be found in any published descriptions; and (4) it helps facilitate learning-training (learning how to learn) as they help to develop the skills learners need to investigate language autonomously (165). The semi-inductive teaching is the inductive approach of teaching followed by deductive approach or explicit teaching of the grammatical features.

In the revised version, the learners will have a chance to listen to the dialogue again, as I believe, similar to what Hinkel and Fotos (2002) suggested, that ‘once a learner’s consciousness of a target feature has been raised through formal instruction..., the learner often tends to notice the feature in subsequent input’ (7). Such enhanced noticing or continued awareness of the feature is suggested to be important because it appears to initiate the restructuring of the learner’s implicit knowledge, and language acquisition development. In addition, some students may like to work individually while some may like to work in group or pair. Variety of task types is therefore suggested in order to meet learners’ differences as well.

6. Conclusions

The selected materials teaching approach is based on a combination of a traditional means of grammar teaching and communicative language teaching. This combination of approaches for teaching Thai EFL learners considering their cultural, political, and learning experience

backgrounds is already well established. However, it is necessary for the teacher to be able to reflect on and improve the teaching material to suit their particular students and classroom context. This article has demonstrated the value of reflective thinking on the grammar textbook and provided suggestions on how to revise the material to fulfill the goal of teaching EFL. The revised version suggests that the selected teaching material would be used more effectively to teach grammar to Thai EFL learners by adding comprehensible inputs, following the semi-inductive learning approach, and using authentic pictures. The approach to revise the textbook has its root from Ellis's (2002b: 176) proposition that grammatical materials might include: (1) discovery-type grammar tasks for raising learner's consciousness about grammar; (2) data in form of structured input to induce noticing of target structures; and (3) input-processing tasks. While the sequence of the original version consists of:

Explicit rule → individual and pair-discussion exercises

The improved version sequenced in the following way:

Data input explicit rule → repeated data input → individual tasks, and
Pair-discussion exercises

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Appendix 1: The Original Version of the Grammar Activities

GRAMMAR FOCUS

Simple present tense of *be*

| | | |
|-------------------------|----------------------------|-------------------------|
| Yes/No questions | Affirmative answers | Negative answers |
| Am I OK? | Yes, you are. | No, you aren't. |
| Are you OK? | Yes, I am. | No, I'm not. |
| Is he OK? | Yes, he is. | No, he isn't. |
| Is she OK? | Yes, she is. | No, she isn't. |
| Are we OK? | Yes, we are. | No, it isn't. |
| Are they OK? | Yes, they are. | No, we aren't. |
| | | No, they aren't. |

3 Practice

Unscramble the words and write questions. Then answer the questions.

1. you / Are / student / a
Q: Are you a student?
A: Yes, I am.

2. today / at school / your friends / Are
Q: Are your friends at school today?
A: _____

3. you / years / Are / old / 10
Q: _____
A: _____

4. your English teacher / Is / American
Q: _____
A: _____

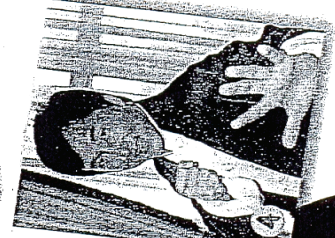
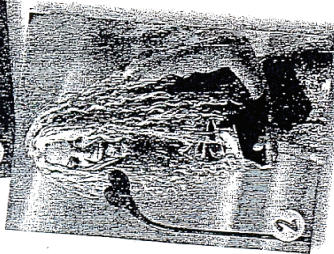
5 Your Turn

Work with a partner. Ask each other these questions and answer them.

What's your name?
How old are you?
What's your favorite movie?
Who's your favorite movie star?

4 Communication

- A. Listen to the dialogues.**
1. A: Hi. Are you Tim Benson?
B: Yes, I am. I'm Tim Benson.
A: Hello, Tim. I'm Maria Garcia.
2. A: Excuse me. Are you Sue Stevens?
B: No, I'm not. I'm Jane Carlson.
- B. Role-play the dialogues with a partner. Replace the names as shown.**
1. Tim Benson → Brad Pitt
Maria Garcia → Your name
2. Sue Stevens → Jennifer Aniston
Jane Carlson → Your name



GRAMMAR FOCUS

Simple present tense of *be*/Subject pronouns

| | |
|-------------------------------|----------------------------|
| Affirmative statements | Negative statements |
| I am 15 years old. | I am not 15 years old. |
| He is 15 years old. | He is not 15 years old. |
| She is 15 years old. | She is not 15 years old. |
| It is 15 years old. | It is not 15 years old. |
| We are 15 years old. | We are not 15 years old. |
| You are 15 years old. | You are not 15 years old. |
| They are 15 years old. | They are not 15 years old. |

| | |
|--------------------|--------------------|
| Long form | Short form |
| I am → I'm | He is → He's |
| He is → He's | She is → She's |
| She is → She's | It is → It's |
| It is → It's | We are → We're |
| We are → We're | You are → You're |
| You are → You're | They are → They're |
| They are → They're | |

1 Practice

Write the short forms (contractions).

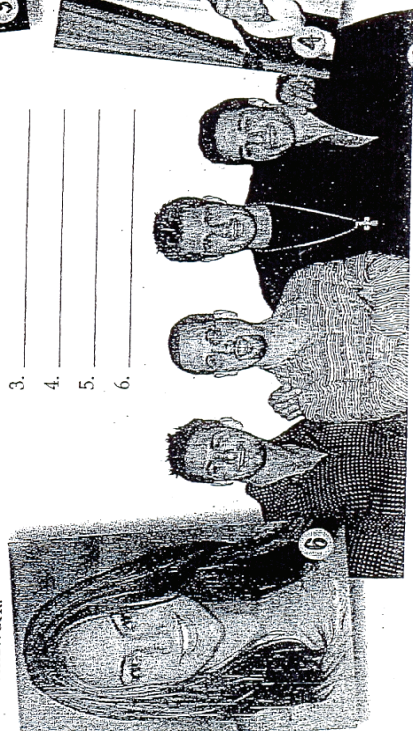
1. (You are) You're my friend.
2. (I am) I'm 12 years old.
3. (She is) She's my classmate.
4. (He is) He's 40 years old.
5. (They are) They're pen pals.
6. (It is) It's my English homework.

2 Practice

Work with a partner. Identify the people in the pictures. Write sentences using contractions.

| | |
|---------------|----------------|
| Tom Cruise | Shakira |
| Julia Roberts | Jackie Chan |
| 98 Degrees | Jennifer Lopez |

1. She's Julia Roberts.
2. _____
3. _____
4. _____
5. _____
6. _____



Appendix 2: The Revised Version of the Grammar Activities

1 Dialogue

Listen and read.

1. Hi. My name is Ted. I'm fifteen years old.

2. This is my sister, Kate. She's sixteen.

3. That's Mark. He's six.

4. Are you okay, Mark?
Yes, I'm okay.

5. Look it's my school! They're my classmates!

6. Let's go, Mark! We're here.

Learning Goals

Grammar
Subject pronouns
Simple present tense: *be*

2 Comprehension

Write the information.

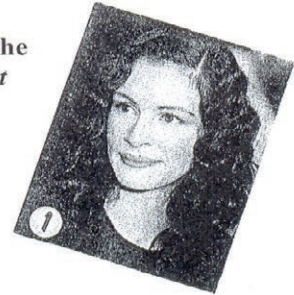
Ted is fifteen years old. _____ is his sister. She is _____ years old. _____ is his brother. He is _____ years old. They are going to _____.

Remember: the subject pronoun *I* is always a capital letter.

3 Practice

Listen to the dialogue again and complete the sentences below with the short forms (contractions) of *subject pronoun* and the verb of *be*.

- Hi, (I am) I'm Ted.
- (You are) _____ my friend.
- (She is) _____ my sister.
- (He is) _____ my brother.
- (They are) _____ my classmates.
- (It is) _____ my school.



GRAMMAR FOCUS

Simple present tense of *be*/Subject pronouns

Affirmative statements

I am 15 years old.
He is 15 years old.
She is 15 years old.
It is 15 years old.
We are 15 years old.
You are 15 years old.
They are 15 years old.

Negative statements

I am not 15 years old.
He is not 15 years old.
She is not 15 years old.
It is not 15 years old.
We are not 15 years old.
You are not 15 years old.
They are not 15 years old.

Long form

I am →
He is →
She is →
It is →
We are →
You are →
They are →

Short form

I'm
He's
She's
It's
We're
You're
They're

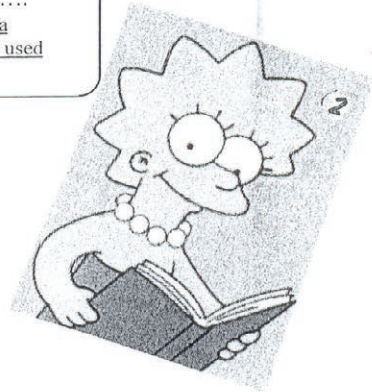
Remember: Long form is used in a formal situation, while short form is used in an informal situation.

4 Moving Up

Work with a partner. Identify the people in the pictures. Write sentences using contractions.

Julia Roberts, Jacky Chan, Tiger Woods, Lisa Simpson, Football players

- She's Julia Roberts.
- _____
- _____
- _____
- _____



GRAMMAR FOCUS

Simple present tense of be

| | | |
|--|---|--|
| <p>Yes/No questions</p> <p>Am I OK?</p> <p>Are you OK?</p> <p>Is $\left\{ \begin{array}{l} \text{he} \\ \text{she} \\ \text{it} \end{array} \right\}$ OK?</p> <p>Are $\left\{ \begin{array}{l} \text{we} \\ \text{they} \end{array} \right\}$ OK?</p> | <p>Affirmative answers</p> <p>Yes, you are.</p> <p>Yes, I am.</p> <p>Yes, $\left\{ \begin{array}{l} \text{he} \\ \text{she} \\ \text{it} \end{array} \right\}$ is.</p> <p>Yes, $\left\{ \begin{array}{l} \text{we} \\ \text{they} \end{array} \right\}$ are.</p> | <p>Negative answers</p> <p>No, you're not. (No, you aren't.)</p> <p>No, I'm not. (No, I am not.)</p> <p>No, he's not. (No, he isn't.)</p> <p>No, she's not. (No, she isn't.)</p> <p>No, it's not. (No, it isn't.)</p> <p>No, we're not. (No, we aren't.)</p> <p>No, they're not. (No, they aren't.)</p> |
|--|---|--|

.....

Remember: When you answer a Yes/No question with a negative answer, it is polite to offer additional information.

A: Is your sister at school?
B: No, she's not. She's at home.

.....

Remember: Do not use contraction with an affirmative answer.

A: Is your sister at school?
B: Yes, She is Not Yes, she's

6 Communication

A. Listen to the dialogues.

1. A: Hi, Are you Tim Benson?
B: Yes, I am. I'm Time Benson.
A: Hello, Tim. I'm Maria Garcia.
2. A: Excuse me. Are you Sue Stevens?
B: No, I'm not. I'm Jane Carlson.

B. Role-play the dialogues with a partner. Replace the names as shown.

1. Tim Benson → Brad Pitt
Maria Garcia → Your name
2. Sue Stevens → Jennifer Aniston
Jane Carlson → Your name

5 Practice Work with a partner.

Unscramble the words and write questions. Then answer the questions.

1. you/ Are/ student/ a
Q: Are you a student?
A: Yes, I am.
2. today/ at school/ your friends/ Are
Q: _____
A: _____
3. you/ years/ Are/ old/ 10
Q: _____
A: _____
4. your English teacher/ Is/ American
Q: _____
A: _____

7 Moving Up

Your turn!

Work with a partner. Ask each other these questions and answer them.

- What's your name?
How old are you?
What's your favourite movie?
Who's your favourite movie star?

Cloud-based LCA Management System for Environment-efficient Society

Noriaki Koide*¹, Koji Okuhara*¹, Kazuhiko Shibuya*², Hiroe Tsubaki*², Noboru Sonehara*³

*¹Osaka University, Japan, *²The Institute of Statistical Mathematics, Japan,
*³National Institute of Informatics, Japan

0690

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Abstract

Recently year, the environmental problem has been the one of most important problem in the world. Bio Diesel Fuel from waste oil is now marked around the world and is in place in Bogor city. Meanwhile, it is needed to visualize for the executing of efficient policy. Thus, in this research, cloud based environmental load estimation system is proposed. The cloud based system is widely available for all business scales. In addition, for visualization of the effect from the recycling of waste oil and its collection, a method using the Smartphone is proposed. Some of cordially projects for the environment can be inefficient as regards of whole life cycle of the project. From a perspective of Life Cycle Assessment, boundary conditions about consumer behavior for the project are set appropriately to estimate of effect. We propose the measuring method contribute to the efficient execution of the biodiesel project using waste oil.

Keywords: Bio-diesel fuel, Waste cooking oil collection, ICT Solution, Certification, Social system

1. INTRODUCTION

Nowadays, bio-diesel fuel is focused as a carbon neutral energy for environmental protection. Bio-diesel fuel can be used like ordinal diesel fuel, and produced from palm oil or waste cooking oil. To produce the bio-diesel fuel, there are several way. In this paper, we focused on the bio-diesel production using waste cooking oil. There are three stages in the process of bio-diesel fuel production: storing, collecting and producing. It can be seen in many countries. It is important to collect the waste cooking oil efficiently, and to promote such productive projects.

On the other hand, we developed a web based LCA management system called eL-Platform. It is one of ICT for realization of the environmental impact evaluation. It is a web system that is a labor saving technology without additional cost when a company introduces and manages. It can contribute the environmental load curtailment by visualization. In order to spread a user friendly LCA system for sustainable society, we must develop the web-based LCA system that is high reliability, easy to use and low-cost. eL-Platform can estimate kg-CO₂e of environmental loads, under given scenarios of selected row materials (intermediate products), energy use and waste disposal, retrieving environmental load labels of materials, when the environmental labelling is formerly made. Figure 1 shows the concept of system as a common platform for environmental management.

In this paper, we discuss how to promote the bio-diesel production with the waste cooking oil collection. Through the discuss, a certification system and application of our web system to estimate the personal reduction on GHG emission is proposed.

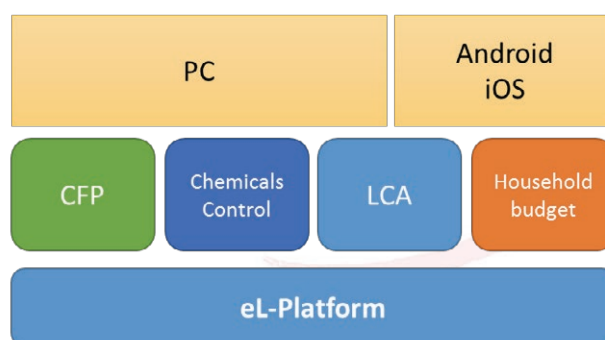


Figure 1: Common platform for environmental management certification of waste cooking oil collection

To promote the bio-diesel production project, it is needed to visualize the personal contribution for the project through the waste cooking oil collection. For example, such identification of them allows us to prize with GHG credits.

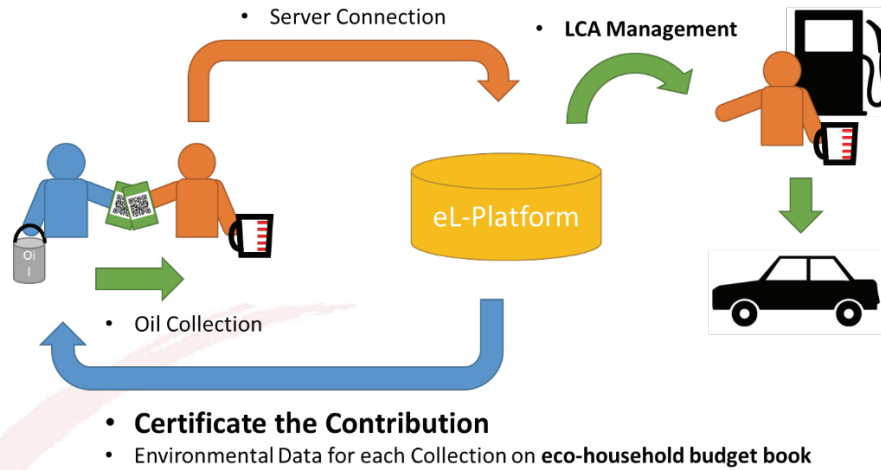


Figure 2: Certification in the Bio-diesel fuel project using eL-Platform

2. WASTE COOKING OIL COLLECTION WITH ASYNCHRONOUS COMMUNICATION TYPE CERTIFICATION

Certification is always hoped to be speedy and easy. Considering such condition to promote the collection of waste cooking oil, ordinal certification style with some papers or documents is not desired. In this paper, we propose a simple certification style using mobile phone connected to Internet. Sometimes we don't have the connection to Internet is offline, and sometimes it is very slow. In this paper, we propose a method which independent on the environment of connection to certify each collection. Table 1 shows a process for the certification of collected cooking oil information on central server.

Table 1. Process of asynchronous communication type certification

| Step | Collaborator | Collector | Server |
|------|---|--|--|
| 1 | Show the QR Code(A) to identify users. | | |
| 2 | | Read QR Code(A), and input the result of collection. | ✕ detailed algorithms such as encryption omitted |
| 3 | | Show the QR Code(B) for notification of result. | |
| 4 | Read the QR Code(B), and store the data. | | |
| 5 | Input conditions for waste cooking oil. | | |
| 6 | Estimation of environmental load (or reduction). | | |
| | | (established communication) | |
| 7 | | Notification the information to the server | Certify the information of QR Code(B). |
| | (established communication) | | |
| 7 | Notification the condition of waste cooking oil to the server | | Store the statistical data. |

3. ESTIMATION OF GHG REDUCTION FROM WASTE COOKING OIL COLLECTION BASED ON LIFE CYCLE ASSESSMENT

Using a difference of environmental load between recycling case of bio-diesel fuel and regular using case, we can obtain a following equation to estimate the reduction of GHG emission:

$$Dif = r_c \{f(r) - 1.844\} - g(x_c, r_c, r_s, m) \{f(r) - 0.0419\},$$

where x_c is an initial amount of the cooking oil, r is remnant ratio, r_c is amount of collected oil, r_s, m are the parameters about timing and times filled up. Function f and g are given by the following equations:

$$f(r) = 0.1387 \times (1 - r)^{-1},$$

$$g(x_c, r_c, r_s, \square) = \frac{r_c^2}{x_c} \times \frac{1 - r_s^{2m+1}}{1 - r_s}.$$

As there is a substantial variation in cooking oil use in households as well as in restaurants, food factories, and food shops, it is of difficulty to simulate an exact GHG emission in every case. However, the visualization in GHG reduction by mobile applications might make a substantial social influence to promote recycling practices, as people want to visualize a simulated value to change their activities. Mobile applications, in Android conducting the GHG reduction simulation in kg-CO₂e under

a simplified model, were recently developed [7] (see Fig. 3), and the former one has a series of additional functions of recycling registration and authentication using the QR codes as well as of an environment household accounts.



Figure 3: Actual applications for the collection and estimation on Android OS

4. CONCLUSION

Visualization of GHG relating personal behaviors such as consumptions, contribution for the bio-diesel production project is important. To promote this project, a certification system using mobile phone has been developed. The system makes it possible to assign a unique number to 1 for each waste cooking oil collection. The certification system develops a consistency of project. By visualizing of personal contribution, we can apply some kind of credit system to it without national system.

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The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is enclosed within a large, light blue circular arc that is partially obscured by a larger, fainter red circular arc in the background.

*A Study on the Relationship among Job Stress Sources, Stress Consequences, and
Stress Coping Strategies of Airport Ramp Workers in Taiwan*

Ying-Chun Wang, Ning-Yu Yen

Transportation and Leisure Service Management National Kaohsiung University of
Hospitality and Tourism, Taiwan

0703

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Abstract

Ramp safety is a major issue in modern global aviation safety, and ramp workers play a key role in ramp operations. Compared to other staff directly associated with the operations of an aircraft, ramp workers usually have to work in harsh environments under time pressure. The hardship of their work makes their occupation a high-stress job. This study investigated ramp workers in Taiwan, used a stress scale questionnaire design based on literature review and interviews, and performed statistical analyses, to determine the relationship among job stress sources, stress coping strategies, and stress consequences of ramp workers. The research results showed that, ramp workers' job stress sources are positively correlated with stress coping strategies; job stress sources are positively correlated with stress consequences; stress coping strategies are negatively correlated with stress consequences. It is intended that the research results can be provided as reference for competent aviation authorities to attach importance to the high risk operational situation of ramp workers, for airline operators to engage in employee stress management in order to reduce ramp accidents caused by job stress, and improve aviation safety.

Keywords: Ramp workers, ramp safety, job stress source, stress coping strategies, stress consequences

1. Introduction

The aviation industry is dynamic and vibrant, and is completely different from other industries. Owing to business needs, various skills are required in the aviation industry to deal with all types of problems and special cargo of passengers, both on the ground and in the aircraft [1]. With the launch of cross-strait charter flights for weekends between Taiwan and Mainland China since July 2008, more than 8.94 million passengers have taken the charter flights as of December 2012. Thus, the cross-strait day trip has been formed, which promotes economic and trade exchanges and prosperity, resulting in busier airport operations. According to the statistics of the Civil Aeronautics Administration (CAA), Ministry of Transportation and Communications [2], 385,140 aircrafts were launched from various airports in Taiwan in 2011, and the number increased by 5.1% to 404,695 in 2012. The increasing global flight frequency has increased the stress of airports, and accidents leading to loss of life and property, as caused by improper ramp operations, have also increased year by year. Consequently, ramp safety has become an important issue that cannot be overlooked.

Airport ground-related operations, ranging from airport ramp services to sky kitchens, warehousing, and terminal passenger services, are all handled by professional ground service companies. There are three ground service companies in Taiwan, including Taiwan Airport Service Co., Ltd., Taoyuan International Airport Services Co., Ltd., and Evergreen Airline Services Corp., which provide professional ground services [3]. Airport ramp workers play a key role in ramp operations. However, it seems that their importance to aviation safety maintenance is seldom investigated in studies. In terms of the technical aspect of logistics support, ramp workers guard the “backcourt” to maintain aviation safety. They should be familiar with and abide by standard operating procedures, and pay attention to the regulations regarding the placement of baggage, cargo, and the various operating procedures of all types of aircraft. They should also take notice of the classification, packaging, labeling, transport conditions, placement position, and isolation requirements for dangerous goods, and maintain the safety of ramp work. The qualification and salary of ramp workers are significantly lower than those of other workers in the aviation industry. However, they must work in the harsh environments of strong sunshine, darkness, heat, coldness, strong wind, thunderstorm, noise, hazardous substances, height, heavy goods, dangerous goods, and time pressure. The hardships of their work are indescribable, and their job is a high-stress occupation.

Existing studies concerning job stress mainly investigated the fields of high-tech industries, manufacturing industries, finance industries, and education. However, there are relatively few studies on workers in the aviation industry, especially the ramp workers of ground service companies.

Under the influence of external negative conditions, such as fluctuating oil prices and global recession, airlines around the world have started to streamline their labor force to save on operating costs. Therefore, in consideration of human resources and the high level maintenance of aviation safety, airline operators must reduce human error, flight delays, employees’ absenteeism and turnover, occupational hazards, and ramp accidents in order to achieve the objective of lowering costs. In view of the high risks

of ramp operations, this study analyzed and investigated the relationships among job stress sources, stress coping strategies, and stress consequences of ramp workers in order to assist relevant operators in determining the problems, provide the research results as reference for employee stress management, and enhance the improvements and attention to ramp operations of airline operators for competent authorities to improve aviation safety.

2. Literature Review

2.1 Aircraft Ground Handling

The ICAO Airport Economics Manual document No. 9562, as published by ICAO (International Civil Aviation Organization), divides aircraft ground handling services into “airport terminal services” (passenger check-in formalities and handling of baggage and cargo) and “ramp services” (handling, cleaning, and maintenance of aircrafts). Ramp workers drive vehicles and use ground support equipment (GSE) to provide rapid and efficient ground handling services for the transit and return of various types of aircrafts [1]. The major tasks of ramp workers are to ensure the safe and efficient carriage of passengers and their baggage, ensure the safe and efficient carriage of cargo, fully perform pre-flight inspections, assist in aircraft pushback operations, and prepare for cabin cleaning and meal services for the next flight. This study mainly defines ramp workers as the personnel engaging in various preparatory operations at airport airside ramps after an aircraft is parked.

2.2 Job Stress

2.2.1 Definition of Job Stress

In terms of job stress, Kahn (1964) first introduced the stress management theory into business management in order to initiate an investigation into stress issues at work. Job stress sources include personality traits, achievement motivation, and work overload [5]. Job stress is different from life and environmental stress, as it is a unique stress source caused by the characteristics of a job [6]. Job stress is a complicated concept, and stress sources vary with occupations. In addition, stress sources may interact with environmental and individual characteristics. Once an individual believes that their capacity cannot endure or undertake current working conditions, and a balance between their individual life and work cannot be reached, job stress is produced [7]. According to various scholars' opinions on job stress, this study defines job stress as the psychological and physical discomforts experienced by an individual when the balance between individual capacity and the requirements of an external work environment cannot be reached, and they find that the environmental requirements exceed the scope of their individual competence.

2.2.2 Categories of Job Stress Sources

Many studies indicated that physical symptoms are representative of different job stress sources, and are directly associated with them. Sutherland and Davidson [8] classified job stress sources into seven categories, including work vagueness, work overload, labor force shortage, organizational culture and climate, time pressure, management roles, and interpersonal relationships. Burke [9] classified job stress sources into six categories, including physical environment, role stress source, organizational structure, work characteristics, relationship with others, and “career

development and occupation family conflict.” This study selected ramp workers that work in a unique environment as the subjects. According to the above classification, opinions from many experts, scholars, and assessment of the current status of ramp workers, this study classifies the job stress sources of ramp workers into four dimensions, organizational environment, interpersonal relationship, workload, and career development.

2.3. Stress Coping Strategies

Stress coping strategies may alleviate stress, namely, the adoption of positive stress coping strategies can help alleviate stress [10]. The most effective solution for an individual to cope with high job stress is to leave the work environment. However, after considering real life and economic factors, most people usually have no choice but to face stress in order to make a living. Consequently, under the situation that employees cannot leave their work environment, they will usually try to adopt preventive or coping behaviors to alleviate discomforts. Lazarus and Folkman [11] pointed out that, “coping” is an individual’s constant change in perception and behavior to deal with specific conditions beyond their assessments and individual resources, which is a dynamic process. Such coping behaviors are the unique behaviors of individuals when dealing with external threats, and are called stress coping strategies. According to the perspectives of various scholars, the stress coping strategies to be adopted can be generally divided into problem-solving, seeking support, rational thinking, and emotional adjustment. Based on various scholars’ generalization of job stress coping strategies, this study divides stress coping into problem-solving, seeking support, rational thinking, and emotional adjustment.

2.4 Stress Consequences

The research results of the Health and Safety Executive, U.K. showed that the negative influences of workplace stress on an organization include, employees’ low work commitment to an enterprise/organization, decreased work performance and innovative capacity of employees, increased turnover and turnover intention of employees, poor attendance, increased leave and absenteeism of employees, difficulty in employee recruitment and poor intention to stay, decreased satisfaction of employees and clients, damages to the image and reputation of an enterprise/organization, and potential litigations. Based on the stress consequences above, this study divides stress consequences into physical symptoms, psychological symptoms, job satisfaction, and turnover intention.

2.5 Relationship among Various Research Variables

2.5.1 Study on the Correlation between Job Stress Sources and Stress Coping Strategies

Chen [13] found that, the higher the job stress perceived by airport ground staff, the higher the frequency of the use of coping strategies. Staff’s use of coping strategies is significantly correlated with workload, interpersonal relationships, environmental factors, and supervisory factors. The use of coping strategies not only reduces the

negative influences of job stress on physical health, but also reduces the negative influences on psychological health. Therefore, stress coping strategies play a very important role in stress coping processes, and the use of more positive coping strategies will alleviate the negative influences of job stress sources on physical and psychological health.

2.5.2 Study on the Correlation between Job Stress Sources and Stress Consequences

Stress will lead to physical diseases, most of which are related to physiological functions. Studies in the 1930s verified that stress will lead to physiological diseases or somatoform disorder. Somatoform disorder refers to the physical illness caused by stress or other psychological factors. Common symptoms include hypertension, gastric ulcer, asthma, and migraine or tension headaches [14]. The Department of Health [15] indicated that, if individuals experience the symptoms of poor memory, negative thinking, indecisiveness, and failure to concentrate, they are exposed to excessive psychological stress. When individuals face long-term stress, they will experience different physiological responses, such as increased frequency of headaches, muscle tension, skin allergies or dry skin, poor digestive system, rapid heartbeat, and chest pain. Stress also has negative influences on psychological health, and can lead to frequent anxiety, depression, and drug and alcohol abuse [16].

2.5.3 Study on the Correlation between Stress Coping Strategies and Stress Consequences

Lin [17] found that the use of positive stress coping strategies can help alleviate stress consequences, thus, the psychological and physical conditions are less likely to be affected. Kao [18] found that the use of coping strategies can adjust the influence of job stress on stress consequences, especially to protect physical and psychological health from the menaces of stress. Huang [19] found that, if air logistics officers in Taiwan adopt positive stress coping strategies to face problems and relieve emotions, and solve problems by taking action or developing perceptions, their work performance will be effectively improved, and their turnover rate will be significantly reduced.

3. Research Method

3.1 Research structure

The research structure was developed based on the research objectives and literature review. This research structure intends to investigate the correlation among job stress sources, stress coping strategies, and stress consequences of ramp workers, as shown in Figure (1):

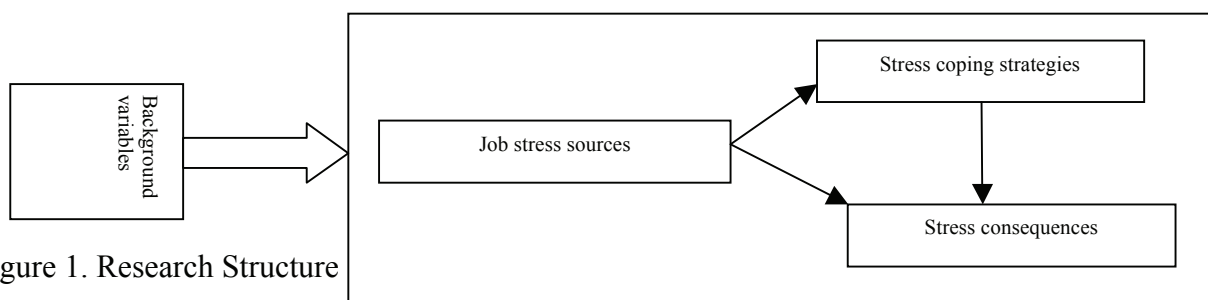


Figure 1. Research Structure

3.2 Research hypotheses

H1: There is a significant correlation between job stress sources and stress coping strategies of ramp workers. H2: There is a significant correlation between job stress sources and stress consequences of ramp workers. H3: There is a significant correlation between stress coping strategies and stress consequences of ramp workers.

3.3 Research subjects

The research subjects were the ramp workers of three ground service companies in Taiwan (Taiwan Airport Service Co., Ltd., Taoyuan International Airport Services Co., Ltd., and Evergreen Airline Services Corp). The sky kitchen and cabin cleaning personnel were excluded from this study. A total of 390 questionnaires were distributed to conduct the questionnaire survey.

3.4 Analysis Methods

This study conducted a questionnaire survey and coded the returned valid questionnaires. This study used the Linear Structure Relation Model (LISREL) to analyze the correlation among the various variables, including job stress sources, stress consequences, and stress coping strategies. Moreover, this study used two software packages, SPSS 18.0 and LISREL 8.52, to analyze the data.

4. Empirical analysis

This study referred to goodness of fit evaluation indicators, as proposed by Chou [20], in order to judge the linear structural equation model. After the data were revised, the goodness of fit of the overall model is: Chi-Square (χ^2) =296.62; Chi-Square ratio= 3.05; CFI= 0.96; AGFI= 0.87; GFI= 0.93; IFI= 0.96; NFI= 0.95; NNFI= 0.94; RMR= 0.087 and RMSEA= 0.07. Most of the indicators are within the standard scope, suggesting that the goodness of fit of the overall model is good, and can explain the cause-and-effect relationship among the three variables.

According to the results of LISREL empirical analysis and testing, job stress sources have a significant positive effect on stress coping strategies; job stress sources have a significant positive effect on stress consequences; stress coping strategies have a significant negative effect on stress consequences. The correlation model among job stress sources, stress coping strategies, and stress consequences, as developed in this study, is as shown in Figure 2, where the solid line denotes a significant path, the dotted line denotes a non-significant path, values without brackets denote path coefficients, and values in brackets denote the t-value of the path.

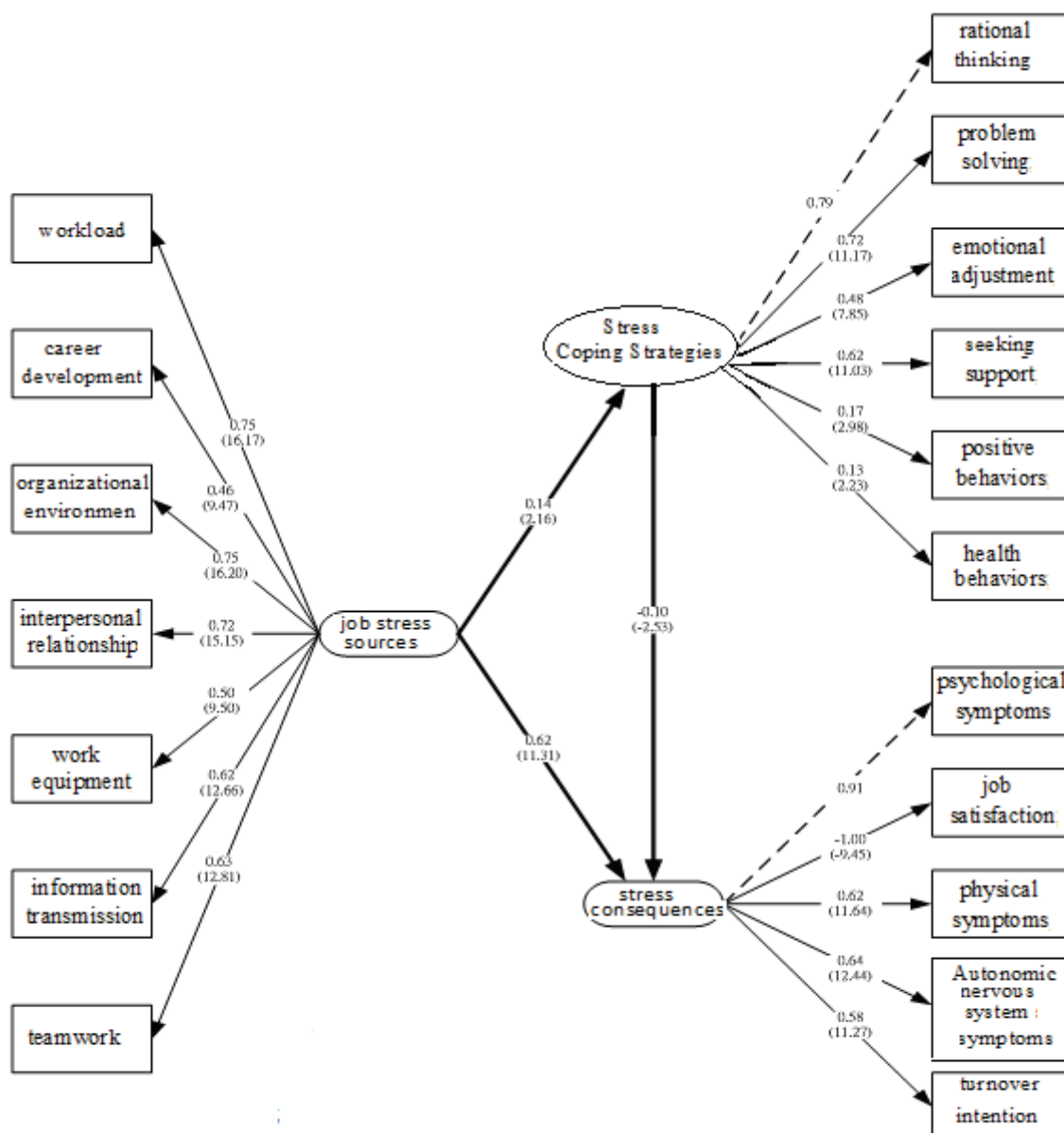


Figure 2. Path Model of Correlation among Job Stress Sources, Stress Coping Strategies, and Stress Consequences

5. Conclusion and Suggestions

5.1 Conclusion

This study developed LISREL to investigate the relationships among job stress sources, stress coping strategies, and stress consequences of ramp workers. The results showed that the goodness of fit is good, and there is a significant correlation among “job stress sources,” “stress coping strategies,” and “stress consequences.”

5.2 Suggestions

The ramp workers in Taiwan generally suggested that their working hours are too long. In addition, the restricted working hours caused by high flight frequency, delays,

and efficiency requirements, tend to result in excessively high job stress. Therefore, airline operators are advised to propose management measures, such as additional overtime pay better than that regulated by the government, increased labor force, reasonable leave system and time planning, as well as following the example of high-tech industries to provide employees with stress relief devices and measures, such as additional leisure centers and the provision of relevant stress relief courses, which can enable employees to alleviate the stress they face, reduce their workload and turnover rate, and improve aviation safety.

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The Relationship among Yoga Teaching, Leadership Type, and Student Motivation in Class Setting

Peiting Chang

Delin Institute of Technology, Taiwan,

0709

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Abstract

In order to improve students' learning, teacher needs to adapt various and useful techniques in class teaching. The efficient learning can be influenced by teacher's personal leadership styles, personal characteristics, or teaching visual aids equipments. The purpose of this study was to investigate yoga teachers' teaching strategies, teachers' leadership types and influence upon students' learning and motivation. The subjects were 45 college students in yoga class. Through teachers' different direction and teaching strategies, students in yoga class will be influenced. Motivation and behavior will change and increase by positive or negative direction from yoga teacher.

Key term: yoga teaching, leadership type, motivation

Introduction

Yoga was originally from India, and numerous people practiced yoga for a long time. Yoga is not just a form of exercise, but many people participated it due to that they want to become strong, healthy, and good body figure. Yoga is a system of physical and psychological techniques for body and mind balance and harmony inside yourself, others, and surrounding environment. Yoga is different from other forms of exercise because the postures link the physical with the spiritual. Some sports only train one or two parts of the body muscles, but yoga postures which based on a system of stretches, balances, twists, and bends would train and work the whole body.

Yoga had become popular in Western countries, and many universities have certain kinds of yoga class for students' selected subjects. However, during the yoga class, students seem to lack for motivation and interests. Most of time, students who don't know how to practice yoga, especially male students who would be easily lack of interests. Many students were afraid that they could not do the posture and long-time practice. As a teacher, he or she might participated in different workshop or training conference even though they were already experienced teachers. Because time changed fast and students would contact new and fashion information or technology, teachers would need to attend various training sessions or workshops to improve their teaching to let teacher attain new tools and techniques for helping marginalized students feel connected to the teaching contents or class while providing a fun and enriching twist on the typical field trip for students' learning.

In different teachers' workshop, teachers would explore other object-rich environment and subjects. Through the training workshop, teachers would be able to find out new ideas and information. First, teachers look for their own personal connections to the objects and spaces they encounter. Teachers can share and validate others' connections, deepening their appreciation for one another's experiences. Second, teachers learn how to prompt their students to make personal connections to these same objects and spaces. Teachers explore how training process can benefit all students, especially those "at risk" of being socially marginalized or dropping out of school. In order to improve learning efficiency and to increase teaching diversity, interesting, and students' motivation, the purpose of this study was to was to investigate yoga teachers' teaching strategies, teachers' leadership types and influence upon students' learning and motivation.

Literature Review

Personality

Personality is the overall pattern of psychological characteristics that make each person unique (Granlees & Joseph, 1994). Each individual is different from one another, personality is the individual's unique psychological characteristics, or more formally, "the underlying, relatively stable, psychological structures and processes that organize human experience and shape a person's actions and reactions to the environment" (Lazarus & Monat, 1979).

Beside, Dishman(1982) proposed a psychobiological model of exercise adherence that includes biological factors, such as body composition, psychological factors, and self-motivation, as influences on adherence. Kagan (1995) focused on the genetic

aspects of temperament, specially shyness versus outgoingness. Zuckerman's work (1994) on sensation seeking emphasizes biological factors.

| Trait | Description |
|---------------------------|--|
| O penness | Being curious, original, intellectual, creative, and open to new ideas. |
| C onscientiousness | Being organized, systematic, punctual, achievement-oriented, and dependable. |
| E xtraversion | Being outgoing, talkative, sociable, and enjoying social situations. |
| A greeableness | Being affable, tolerant, sensitive, trusting, kind, and warm. |
| N euroticism | Being anxious, irritable, temperamental, and moody. |

Figure 2.1 Personality dimensions: the Big Five (Gill, 2000)

Most current personality theories agree that personality is determined by multiple, interdependent factors, and we are not likely to identify simple biological or experiential factors. Psychologist explored the structure of personality, but the literature suggests consensus. Most personality psychologists accepts the "Big Five" model with its five major dimensions (Gill, 2000). (See figure 2.1).

Motivation

Sapp and Haubenstricker (1978) were the first to study participation and discontinuation motives with youth sport participants. Participation motivation refers to the basic motivational issue of why people participate in sport and exercise. Adults and children are motivated to participate in sports for similar reasons, although health concerns are more important and skill development and competence are less relevant for adults in exercise settings than for children (Passer, 1981; Gill, Gross, & Huddleston, 1983).

Susan Butt(1995) has incorporated competence motivation literature in her psychodynamic motivational model which specifies 4 levels of sport motivation:

- **Biological motivation :**
the 1st major source of sport motivation, like: the will to win and the struggle for survival.
- **Psychological motivation :**
Aggression (individual is eager, active, energetic), Competence (individual has maturity, self-insight, and find joy in sport)
- **Social motivation:** Competition, which evolves from aggression and competence
- **Secondary reinforcements as motivation:**
Individual tend to be motivated by external reinforcers such as attention, prizes, position, status, and recognition.

Sport commitment is operationally defined as a psychological state representing the desire and resolve to continue sport participation in a particular program, specific sport, or sport in general (Scanlan, Simons, Carpenter, et al., 1993). The original sport commitment model was posited as having five direct antecedents that can increase or decrease sport commitment: sport enjoyment, involvement opportunities, personal

investments, social constraints, and involvement opportunities.

Scanlan, Carpenter, et al(1993) defined factors that influence sport commitment:

1. Involvement alternatives: defined as the attractiveness of the most preferred alternative(s) to continued participation in the current endeavor.
2. Personal investments: personal resources such as time, effort, and energy that would be lost if participation did not continue.
3. Social constraints are the social expectations or norms that create feelings of obligation to remain in the activity.
4. Involvement opportunities are the anticipated benefits that one receives through continued participation such as friendships, social interaction, skill mastery, and physical conditioning
5. Positive affective response to the sport experience that reflects generalized feelings such as pleasure, liking, and fun (Scanlan et al., 1993).

An additional predictor of commitment revealed in more recent research grounded in the Sport commitment model is “social support” Children participate for many different reasons, and those reasons fall into common dimensions, with skill development, competence demonstration, and particularly excitement, challenge, and fun appearing as important motives (Roberts, Kleiber, & Duda, 1981; Gould, 1982). Maslow’s self-actualization theory (1943, 1954) are more optimistic (See figure 2.2). Maslow thought human beings in a very positive light and believed that everyone has a natural tendency to pursue progress and achieve their highest potential. He argued the issues that we are all innately good, kind, and virtuous, and that psychologists had spent far too much time focusing on the negative aspects of humanity.

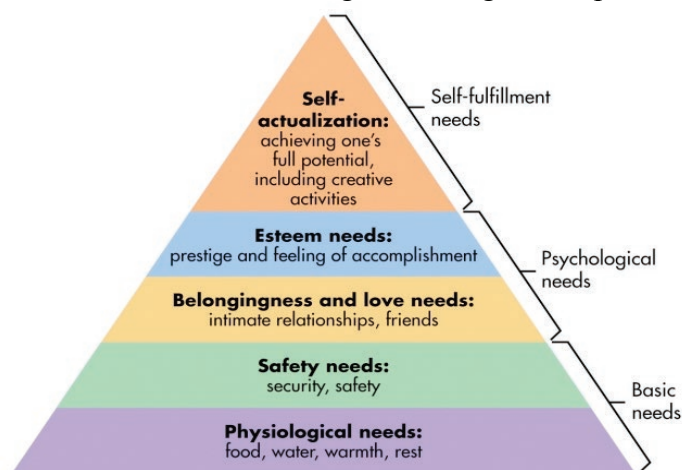


Figure 2.2 Maslow’s self-actualization theory (1954)

Atkinson’s (1964, 1974) theory of a achievement motivation is an interaction model that specifies personality and situational factors as determinant behavior in precise, formal terms. Murray (1938) first discussed achievement motivation as a personality factor, defining the need to achieve as the desire. Person with a high motive to approach success and low motive to avoid failure are the high achievers who seek out challenging achievement situations without worrying about possible failures. Low achievers worry about failure a deal and avoid achievement situations. Besides, Mischel (1968) pointed out that the assertive basketball player doesn’t display assertive behavior in every situation, like in class setting.

A good training problem can improve ability and motivation (Weiss, Amorose, & Wilko, 2009). Experts (Bohlander, Snell, Sherman, 2001) believe that training design should focus on at least 4 related issues:

- 1. Instructional objectives**
skill and knowledge to be acquired /or the attitudes to be changed.
- 2. Trainee readiness and motivation**
refers to both maturity and experience factors in the trainee's background.
- 3. Principles of learning**
like goal setting, active practice, feedback, modeling and etc.
- 4. Characteristics of instructors**
the success of any training effort will depend in large part on the teaching skills and personal characteristics.

Teaching and leadership type

There are different teaching techniques and leadership types which may influence students' learning and classroom teaching atmosphere. A good teacher will apply various teaching techniques during his or her teaching session in order to interesting students' concentration.

A teacher is one who focuses attention and inspires a learning attitude. Many ways to attract students' interests, and all teachers will eventually develop a style that works best for them. Communication, planning and presence are the keys to a successful educational career. A well-rounded teacher is also versatile and able to think on his feet. There are different strategies for teaching:

1. Teachers should be able to listen as much as they talk in a classroom.
2. Vary daily activities to prevent boredom and allow for classroom interaction between your and students.

Paul Ramsden(1992) organizes that essential knowledge into these six principles, unique for the way he relates them to students' experiences.

1: Interest and explanation – Coupled with the need to establish the relevance of content, instructors need to craft explanations that enable students to understand the material. This involves knowing what students understand and then forging connections between what is known and what is new.

2: Concern and respect for students and student learning – “Truly awful teaching in higher education is most often revealed by a sheer lack of interest in and compassion for students and student learning. It repeatedly displays the classic symptom of making a subject seem more demanding than it actually is. Good teaching is nothing to do with making things hard. It is nothing to do with frightening students. It helps students feel that a subject can be mastered; it encourages them to try things out for themselves and succeed at something quickly.”

3: Appropriate assessment and feedback – This principle using a variety of assessment techniques and allowing students to demonstrate their mastery of the material in different ways. It avoids those assessment methods that encourage students to memorize and regurgitate. It recognizes the power of feedback to motivate more effort to learn.

4: Clear goals and intellectual challenge – Effective teachers set high standards for students. They also articulate clear goals. Students should know up front what they

will learn and what they will be expected to do with what they know.

5: Independence, control and active engagement –Good teachers create learning tasks appropriate to the student’s level of understanding. They also recognize the uniqueness of individual learners and avoid the temptation. “It is worth stressing that we know that students who experience teaching of the kind that permits control by the learner not only learn better, but that they enjoy learning more.”

6: Learning from students – “Effective teaching refuses to take its effect on students for granted. Good teaching is open to change: it involves constantly trying to find out what the effects of instruction are on learning, and modifying the instruction in the light of the evidence collected” (Maryellen, 2009).

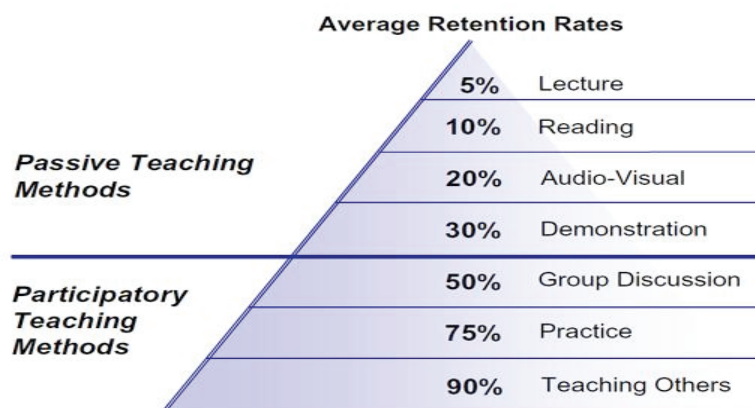
During the class teaching, teaching methods come in many ways, such as lecture, class discussion, small group discussion, problem solving, role playing, demonstration, DIY activities, and videotapes are different types of teaching methods. A well-rounded class should be exposed to multiple teaching methods to motivate students and increase learning interests. In addition, there are many supplies which can help teachers to increase teaching efficiency, like visual aids which can enhance lesson plans and give students additional ways to process subject information.

Role play is one of teaching methods in class and is evolving as a very effective, interactive teaching and training tool. The great developmental psychologist, Jean Piaget (1932, 1936, 1945), described two modes of learning: "assimilation" and "accommodation." In assimilation, people figuratively "fill in" their mental map of their world, while in accommodation they figuratively change that mental map, expand or alter it to fit their new perceptions. Both processes are complementary and concurrent, but different types of learning tend to emphasize one or the other mode. Role playing isn't to be viewed as a particularly psychological procedure. It has been widely used as a part of many different types of therapy. Role playing is simply a less technologically elaborate form of simulations (Adam Blatner, 2009).

Musicians and Sport players, actors and firemen, all need to practice their skills, because complex operations cannot include all variables in a single lecture. Issues of adapting general principles to one's own set of abilities, temperament, and background; working out the inevitable "bugs" any complex system generates; and preparing for unforeseen eventualities--all are frequent goals of this kind of role playing (Adam Blatner, 2009). The learners or participants can act out the assigned roles in order to explore the scenario, apply skills (maybe communication, negotiation, display etc.) It helps to develop all domains of learning, cognitive (knowledge), psychomotor (skills) and affective emotional (Pont,1996).

The learning pyramid originates from the National Training Laboratories (NTL) for Applied Behavioral Science. The percentages represent the average “retention rate” of information following teaching or activities by the method indicated. From the top is Lecture which has less retention rate 5% and “Teaching others” has highest retention rate 90% which describes as participatory teaching method. Many people believe that the “learning pyramid” that lists learning scenarios and average student retention rates is reliable (Lalley & Miller, 2007) (See figure 2.3).

The Learning Pyramid*



Reference: National Training Laboratories. Bethel, Maine

Figure 2.3 the Learning Pyramid

Method

During the class teaching, teacher would needs to utilize various ways in their teaching in order to enhance students' learning interests and attention. The purpose of this study was to investigate yoga teachers' teaching strategies, teachers' leadership types and influence upon students' learning and motivation. There are totally 42 college students in yoga beginner class in Taiwan. Most of students don't have ideas about yoga exercise, and some know yoga from TV, internet, fitness brochure, and etc. During the class, there was an observer who will record students' response and behavior. Observer would record students' reaction, internet Q&A discussion board, and calls with their instructor. Besides, students were assigned to be a teacher and teach others how to practice yoga in a final demonstration session test and students also had to prepare their teaching curriculum for one teaching session (lasting 30 minutes). Then, observer recorded students' reaction before and after their teaching session demonstration. Besides, questionnaires satisfaction was as a method to investigate students' learning satisfaction. The following lists would be record as students' behavior and each action would be recorded as "1" point.

1. Ask question in class
2. Discuss with others in class
3. Class demonstration
4. Ask question after class
5. Q&A discussion board
6. Send text message to instructor
7. Give a call.
8. Discuss online through Face book link
9. Talk automatically in students' teaching session
10. Have interaction with others in students' teaching session
11. Students' active response with different teaching strategies

Result

Teaching, learning, and studying are influenced with one another. Through interesting teaching can effectively increase studying motivation and then enhance learning efficiency. The purpose of this study was to investigate yoga teachers' teaching strategies, teachers' leadership types and influence upon students' learning and

motivation. There are totally 42 participants who are 13 males (31%) and 29 females (69%). After the application of observing, teaching strategies, and questionnaires, the descriptive analysis was as following table4.1.

| gender | number | : Ave. | S.D. | |
|-----------------|--------|--------|--------|--------|
| satisfaction | 1.00 | 13 | 4.6923 | .48038 |
| | 2.00 | 29 | 4.6897 | .47082 |
| active | 1.00 | 13 | 4.8462 | .37553 |
| | 2.00 | 29 | 4.7931 | .41225 |
| likeinteraction | 1.00 | 13 | 4.0000 | .70711 |
| | 2.00 | 29 | 4.5517 | .63168 |
| Teachinggood | 1.00 | 13 | 3.8462 | .68874 |
| | 2.00 | 29 | 4.5517 | .68589 |

Through T-test analysis, the examination of gender difference had significant statistic difference with the question “teaching others is good experience”($t = -3.078, p < 0.05$). Others didn’t have significant statistic difference ($p > 0.05$). Male students express higher satisfaction in the selection of “learning satisfaction”(Ave.=4.6923) and “instructors’ teaching is active and interesting” (Ave.=4.8486) than female students (Ave.=4.6897; Ave.=4.7931). However, female students showed higher satisfaction in the selection of “I like to have interaction with others” (Ave.=4.5517) and “Teaching others is a good experience” (Ave.=4.5517) than male students (Ave.=4.0000; Ave.=3.8462).

With the total of eleven checking points which were recorded by observer, participants express higher score in the posttest (Ave. score=33.6905) than in pretest (Ave. score= 0.785714) (see figure 4.1). Besides, the amount of 15 selection which include 11 checking points and 4 questionnaire scores was expressed higher score in the posttest (Ave. score= 51.9047) than scores in the pretest (Ave. score= 9.809524). From the results, it showed that participants had higher satisfaction toward instructors’ teaching and learning satisfaction in the posttest. Besides, participants express more active interaction with instructors and others and score was higher than in the pretest by observing.

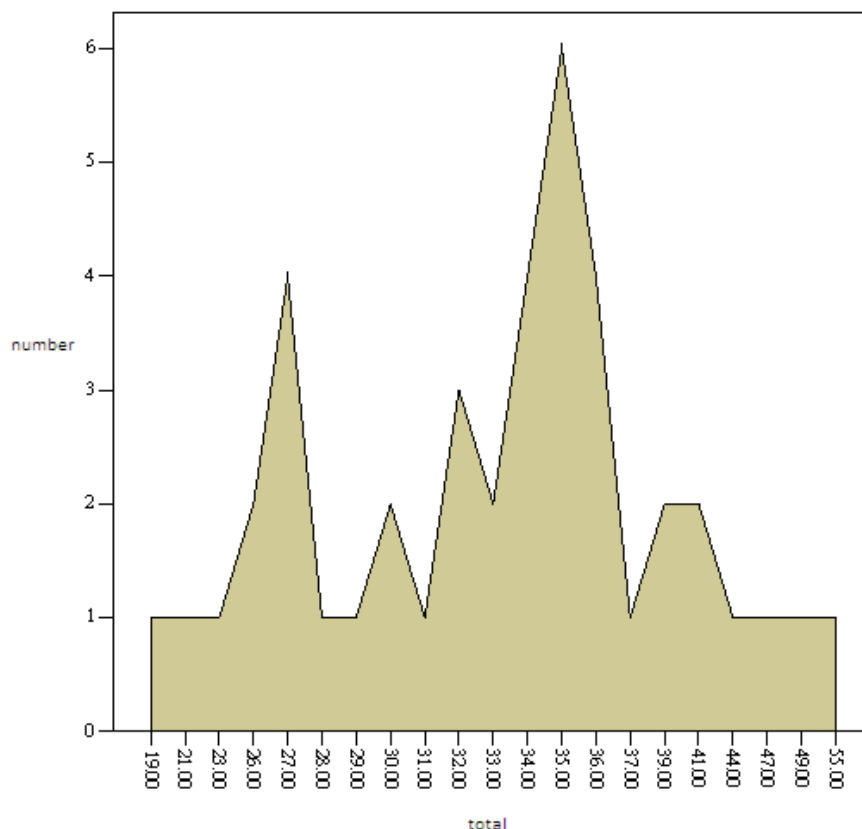


Figure4.1 descriptive analysis of total score

Conclusion

Many psychologists and educators devoted themselves into researches in order to find out how to motivate students and how to improve learning efficiency. Not only in academic courses, but also physical education classes need various teaching strategies and leadership application into class setting. The purpose of this study was to investigate yoga teachers' teaching strategies, teachers' leadership types and influence upon students' learning and motivation. From the results, participants showed more interaction with yoga instructor.

Students spent more time on practicing yoga and preparing teaching curriculum design along with increasing the time of asking questions by online, Q&A discussion board, call, or Face book. Besides, observer watched students' performance and their 30 minutes of individual design of teaching yoga session. Students displayed active, enthusiastic, interesting, dynamic communication skill and emotion which students would ask questions by themselves during the class or after class. With the results of this research, students improve active interpersonal communication and skill practice without notice their personal behavior change. In addition, students' self-confidence and responsibility would also increase after the class setting.

With the yoga class training and teaching strategies application, it could be applied to sports exercise classes and other academic courses. B. F. Skinner's behavioral theory, operant conditioning, mentioned personal behavior change can be influenced by external and mental factors which can cause an individual behavior model change and become stable behavior. It is suggested that a yoga instructor can

utilize various teaching strategies and instructors' personal leadership types would influence class design and curriculum. With the increasing of students' learning satisfaction and interests enhancing, students would get involved into the class and enjoy learning, and then their learning efficiency would improve. In order to motivate students and to increase their attention rate, it is suggested that using various teaching strategies, psychological setting design, and improving instructors' experience and dynamic teaching styles.

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Poverty and Local Development in Mexico: Seeking Solutions

Mballa Louis Valentin, Gonzalez Lopez Carlos

Universidad Autonoma De San Luis Potosi, Mexico

0146

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Official Conference Proceedings 2013

Abstract

Topic: Politics, Public Policy and Law Psychology

Nowadays, Mexico is involved in two important processes: in the economic sphere, the Mexican government is engaged in an ongoing process of integration into the international economy. On the political and social level, is building a solid democracy system. However, the two processes are complex and are often characterized by the forgetfulness of "local development". Moreover, the intensification of the basic needs of the people leads to a high level of poverty that is related to the lack of the capacity to generate jobs, marketable services and infrastructure that allow them to interact with other economic and labor sectors. A recent report of the Mexican Social Development Ministry mentioned that 54% of Mexicans live in poverty, (surviving with less than USA \$ 4 a day), while 32% do so with less than 2.5 dollars, and 24% with less than \$ 2 a day. Also, the main purpose of this paper is to analyze the situation of poverty and its effects on local development in Mexico. The central argument or hypothesis is that, the Mexican government at all levels (federal, state and municipal), with inappropriate strategies of combating poverty, tends to get lost in the complex system of the national economy; that mitigates the efforts of combatting poverty and social exclusion. Indeed, to achieve an efficient local development, it is necessary to take in account sociocultural, economic, technological, ecological and political actors. Furthermore, it is essential to generate thoughtful changes in the behavior of all these different actors.

Key words: Poverty, Local Development, Social Programs

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Introducción

Despite the implementation of social policies, poverty in the World has been increasing. The results obtained by the implementation of social policies to combat poverty have had some effect in certain regions such as sub-Saharan Africa, South America and countries of the former Soviet Union.

In the case of Mexico, the new programs to combat poverty, born into a complex institutional context. Indeed, public opinion is convinced that programs to combat poverty applied from the beginning of the XXI century are always full of opaque dealings with political and electoral purposes. Therefore, we try in this paper, to present the relationship between local development and poverty reduction. Moreover, some efforts are made by the Mexican government to find solutions to the problem of poverty.

Since the 90s there was a major change in social policy to overcome poverty in Mexico. It was also designed a scheme of operations in two ways: on one hand, the implementation of actions aimed to confront security, welfare, health, education, job training and housing issues. In this aspect Mexican government sought to grant the poor and marginalized people the enjoyment of social rights enshrined in the Mexican Constitution. On the other hand, the implementation of measures targeting the extreme poverty aimed at developing capacities of individuals and families through concretes actions of giving food, health and education, construction of basic social infrastructure and creation of employment opportunities and income.

Local development as an alternative to fighting poverty

The notion of local development is full of ambiguities, inaccuracies and difficulties of definition. Often the question arises is: What is local Development? To avoid discussions looking to find an exact answer to that question, it is considered in the context of this paper is that the local interactions represents a system with some autonomy besides that it is "more real" than global. Moreover, the global is not the simple addition of local realities, but a specific dimension of the social.

The crises that have shaken the international system since World War I forced a search of new forms of mobilization of human potential. Gradually, it has been installing the conviction of the irreversibility of the process. It seems that it is useless to look back and try to reconstruct what these crises have led to humans Bings. It is necessary to imagine other forms of development that exceed qualitatively previous forms. That effort to raise alternative development has led to many proposals usually known as "human scale

development”, “Basic development”, “eco-development”, “self-sustaining development” and “self-centered development” (Arocena 2002).

Also, towards the end of the seventies many research start to talk about local development, with a focus driven by most industrialized countries in that decade. A generalized discourse focused on the concept of local initiative to mobilize the potential of people in poverty and social marginalization. Today, there has been considerable multiplication of local actions in areas such as the testing of new energy sources, renovation of traditional activities, new operating procedures of raw materials, the introduction of new technologies, opening new channels commercial revitalization of small business. Closely linked to the development of local initiatives, training and access to new skills have been important tools in the effort to mobilize human resources.

The question that deserves special attention today is undoubtedly the one that concerns the immediate relationship between local development and poverty reduction. One way to answer that question is to remember that guidelines for local development in the 70 and 80 had a boost mythical content allowing Third World societies through the mobilization of marginalized populations, which has had a effect on poverty reduction. The promotion of small business, training action for potential business creators, training policies for employment, initiatives of local institutions in socioeconomic, poles of retraining, are expressions of these efforts to mobilize local human resources and combat the gaps and needs of the people.

However, these hypotheses are only one way to understand the changes that have been given to analyze the performance of local initiatives. Indeed, humanity can also move towards the concentration of the production in a few areas of the planet and in a few high-tech centers. In this case, local development serves as mere entertainment, as a toy to amuse unemployed people (Arocena 2002). Beyond speculation about the importance of local development as a tool to fighting poverty, it is indisputable the current revaluation of individual and collective initiative. Initiatives are multiplying in the form of small business development, boost to innovative projects, revitalization of local socio-economic fabric. In recent years, this phenomenon has reached a very important dimension with the introduction of techniques based on electronics and biotechnology, the revitalization of certain trades, developing new skills, innovation in marketing and service delivery.

Indeed, poverty and extreme poverty are associated with populations living in small towns, scattered and often isolated. These populations are closely related to the primary economic activity, with little possibility of entering in the global market despite having potential and competitiveness. One cause of this is the isolation and lack of transport and communication structure. Poverty and extreme poverty are associated with populations living in small towns, scattered and often isolated. These populations are closely related

to the primary economic activity, with little possibility of entering to the local market and much less to the international one, despite having competitiveness. One cause of this is the isolation and lack of transport and communications structure. Access to paved roads with continuous maintenance is limited, while small roads or gaps interconnect other locations, which are always inaccessible especially in bad weather. Indeed, the unequal distribution of wealth has concentrated the National Income on certain sectors such as those specifically dedicated to the export of goods and services, neglecting others like agriculture, small and medium business on which local development relies heavily (Mballa: 2013)

One way to fight poverty while promoting local development is undoubtedly endogenous harness the potential of local actors. Failure to establish a direct correlation between poverty and its effects on local development may be limited to "compensate" the exclusionary effects of general economic and social situation. Indeed, an analysis of the experiences of local development in Mexico leads to questioning of traditional conceptions and development programs that have been dominant in recent decades and have not achieved in practice the desired results. The unequal distribution of national income has been concentrated in certain sectors such as those specifically dedicated to the export of goods and services, neglecting others like agriculture, small and medium business that depends heavily on local development.

For these reasons, local development policy needs political support of the different actors as well as business will, to bet on "local" and its development, to raise the living standard of the population with scarce resources.

Poverty in Mexico: Some statistics

According to statistics from the Economic Commission for Latin America and the Caribbean (ECLAC), between 2006 and 2011 all Latin American countries, except Mexico, managed to reduce poverty by 6.9 percentage points on average. During the same period at the regional level, the indicator fell from 36.3% to 29.4%. However, the agency estimated that in Mexico the percentage of the population in poverty conditions jumped from 31.7% in 2006 (the year Felipe Calderón assumed office) to 35.3% in 2011. And last but not least, homelessness in Mexico increased from 8.7 to 13.3% in that period, which means an increase of 4.6 percentage points.

According to the "2012 Social Landscape of Latin America" presented by ECLAC on *November* in the Chilean capital, in 2006 poverty in Mexico was 4.6 points *lower* than the regional average and the same with homelessness. In 2011, both indicators *exceeded* the Latin American average: poverty by 5.9 points and homelessness by 1.9 points, which had never happened in the past. On the list of eighteen countries included in the 2012

Social Landscape ECLAC, Argentina has the lowest incidence of poverty, with 5.7% of the population, followed by Uruguay (6.7%), Chile (11.0%), Costa Rica (18.8%), Brazil (20.9%) and Panama (25.3%). Mexico is among the six poorest countries in the region, second only to the Dominican Republic (42.2%), Bolivia (42.4%), Paraguay (49.6%), Nicaragua (58.3%) and Honduras (67.4%).

ECLAC said that their poverty figures for Mexico are different from those of the National Council for Evaluation of Social Development Policy (CONEVAL) because the Mexican institution takes a multidimensional measurement, and the UN agency only measures household income. However, ECLAC and CONEVAL agree that poverty in Mexico has increased in recent years (Corda: 2012). Similarly, in Mexico, the Social Development Secretariat considers that 54% of Mexican live in poverty, indicating that they survive with less than 4 USD a day, while 32% do so with less than 2.5 USD and 24% less than 2 USD. From this perspective, the poorest states in the country are Chiapas, Guerrero, Oaxaca, Tabasco and Durango, and they concentrate high percentages of indigenous population (Aboumrad: 2013).

Mexico in search of solution to combat Poverty.

Mexico and all Latin American countries have tried to find a solution to the issue of the fight against poverty. The first efforts of the Mexican government to attend the needs of the most vulnerable populations were carried out during the early seventies. Also through various programs, the Mexican government has launched a series of instruments to find a solution on the issue of poverty. However, the evaluation of these programs usually isolated has revealed that its target has never been reached. This can be explained by the fact that Poverty in the late seventies was not a priority on the government agenda. The fight against poverty has become a priority and urgent on the government agenda in Mexico until the late eighties when the pauperization reached truly alarming levels; therefore, the government began to look for strategies to attend the social costs and negative effects on the quality of lifestyle of most of the Mexican population left by the adjustment and structural reforms implemented in the early eighties (Palacios, 2007:146).

It is important to note that these mechanisms to fight poverty respond to the recommendations of some international organizations. By the end of the eighties, the problem of poverty takes an unusual importance; Programs driven by the United Nations, the World Bank, the Inter-American Development Bank and the International Monetary Fund, among others focused on the issue of poverty. The rhetoric of these institutions suggests that poverty reduction is achieved around economic growth by economic liberalization of the market that would result in greater welfare of the population.

The National Solidarity Program (PRONASOL) -1989-, begins the time of specific programs to combat poverty and leads the way in the fight against poverty. That program was created rather, to offset the effects of structural adjustment that had been implemented since the mid-eighties and based on popular participation.

Social policy as an instrument of Poverty alleviation

Social policy is the main instrument to combat poverty in Mexico. However, not until the last decade of the last century that social policy in its aspect of fighting poverty, acquires own settings within public policies in Mexico, mainly through increasing the canalization of resources to specific social programs (Cabrera, 2007).

Added to this, the social policy aims to create conditions for people to be successfully incorporated into labor markets and begin to trigger virtuous circles of more training, higher incomes and poverty reduction. Mexico has been in recent decades a laboratory for experimentation of structural adjustment programs imposed by international organizations. However, history has shown that the result has been disastrous (Damian, 2004).

Since the forties, international institutions like the World Bank, the International Monetary Fund and other United Nations agencies, have been proposing social programs which basically set policies to combat poverty, with three essential elements: i) broad-based economic growth, ii) development of human capital and iii) networks of social protection for the poor people.

Another great debate within the field of combating poverty in Mexico is the implementation of policies that have an effect on the standard of living of Mexicans. In that sense, the programs to fight poverty from the perspective of targeting Mexico have gained strength with the support of the government.

From this perspective, the supports are aimed at the poor, and seek to share responsibilities on fighting against poverty. These targeted programs have gained legitimacy due to its focus on the poor and marginalized people. However, within the disadvantages of such programs it may be indicated that such programs become mechanisms of political manipulation of the poor, as a means to maintain political patronage or corrupt practices (Dresser, 1997).

Some local development programs and Poverty in Mexico.

a) PIDER and COPLAMAR

The Public Investment Program for Rural Development (PIDER) was in operation between 1973 and 1983. PIDER focus was to solve social and production issues in

specific regions through the coordination of investment in various sectors and levels of government in Mexico. Its main objective was to achieve a comprehensive rural development for the rational use of natural resources and to combat rural exodus. That program depended directly on the Presidency and was supported by international organizations like the World Bank and the Inter-American Development Bank.

The greatest achievement of PIDER was the implementation of effective forms of coordination between the Federal government and the different States in Mexico. The PIDER had to coordinate with the local governments of the various states through their regional promoters called Socioeconomic Development Committees (COPRADES), which from 1981 would become the Planning Committees for Local Development (COPLADES). At the same time PIDER assumed the coordination with various institutions such as the Ministry of Agriculture and Water Resources, Human Settlements and Public Works of the Agrarian Reform, with the Federal Electricity Commission and the National Rural Credit Bank. PIDER also managed to achieve considerable progress in the field of regional planning and coordination by encouraging the decentralization of public administration in the implementation processes of local development, the fight against poverty and social marginalization.

For its part, the General Coordination of the National Plan for Depressed Zones and Marginal Groups (COPLAMAR) was established in January 1977 in order to carry out actions that would enable to achieve a fairer share of the national wealth (Del Val, 1997). Its objectives were: (Cordera and Lomeli, 2005): a) increase the productive potential of marginalized groups to generate goods, food and services; b) promote the creation of jobs and diversification in marginalized areas by channeling public and private resources; c) achieve a fair remuneration for the work and the products generated by marginalized groups and promote an equitable distribution of resources (food, health, education and housing) that benefit the poor people and d) promote respect for the forms of organization of marginalized rural groups.

One of the great achievements of COPLAMAR was to gather information on the satisfaction of basic needs in terms of housing, nutrition, health and education, building the basic needs basket of the poor people. During this program several concrete actions were carried out in the field of health, education, food supply, drinking water supply, road construction, employment generation, rural electrification, agro-industrial development and support services to the rural economy. The basis of the success of that program was to make agreements with public institutions, contracting them to do the works programmed. Despite the success of this program, one of its limitations was the strong centralization of decisions (Robles: 2007).

b) SAM and PRONASOL

The Mexican Food System (SAM) was established in March 1980, before the Mexican agricultural crisis raised in the second half of the decade of the seventies. The SAM originated as a strategy to achieve self-sufficiency in basic grains for the farmers. The main features of this program were to increase credit, improved seeds, fertilizers, machinery and equipment, technical assistance and coverage in the control of pests and diseases.

However, despite the positive results of the SAM, the program had little redistributive impact, and in turn, the dismantling of programs and poor environmental protection originated severe environmental degradation. Meanwhile, the implementation of the Nutrition and Health as an extension of SAM was the most important in the fight against extreme poverty and had as its main feature, improved nutrition and health status of marginalized families of Mexico.

In 1988, the Mexican government launched the National Solidarity Program (PRONASOL) with the aim of reducing poverty in rural, indigenous areas and the population living in of the arid areas, through the implementation of actions in six basic components, such as food, health, education, housing, employment and production projects.

The PRONASOL arose in the context of the economic crisis and the structural adjustment process in the eighties, characterized by the consolidation of public finances, macroeconomic stabilization, structural changes in the economy and growing social demand exceeded the capacity response of institutions (Palacios, 2007).

All the programs carried out by the PRONASOL are classified into three areas: i) the social solidarity, aimed at improving the living standards of the neediest populations to meet their basic needs services, ii) production solidarity, creating employment and training opportunities relying on farming and forestry and iii) regional development solidarity, aimed at building basic infrastructure of regional impact, as well as the implementation of programs in specific regions of the country, promoting Township and strengthening the decentralization of local governments.

One of the most important features of this program was the creation of a “community work method” and was the central component of the so-called “solidarity committees”, that gave rise to a new type of institutionalized social organization, which was a requirement to channel demands and lending to the poor people (Palacios, 2007).

c) Recent Programs: *PROGRESA* and *OPORTUNIDADES*

In the late 1990s, the World Bank took a turn in its proposals in the fight against poverty and implemented the *Conditional Cash Transfers (CCT)* programs of which *PROGRESA* and *OPORTUNIDADES* were representative in Mexico. These are two programs with the same goal but with different content because the assumptions and directions of these programs changed their orientation. The guidelines for these programs in Mexico are located in the document *Project of Decentralization and Regional Development 1991, Assessment Report*, particularly those relating to the recognition of the Mexican poorest states: Chiapas, Guerrero, Hidalgo and Oaxaca.

The Education, Health and Nutrition Program (*PROGRESA*) was a Federal executive program inserted into the side of the development of human capital in the context of a comprehensive social policy, inter-sectorial actions for education, health and nutrition of those families living in extreme poverty, in order to promote and strengthen their capacities and potential, raise their standard of living and promote their inclusion in national development. The operation of *PROGRESA* was based on three fields of action: i) education: in order to secure the attendance of children at schools, providing scholarships in order that they remain in school, ii) health: the program focuses on care for children under five, pregnant and lactating women, to reduce illness and death of family members and iii) power supply: is monetarily support to beneficiary families in order to contribute to the improvement in quality and nutritional status.

PROGRESA uses geographic targeting, monetary resources and grants to poor families and certain services assuming that since poverty is inherited, and breaks the vicious circle of poverty. Its main objectives are summarized as: 1) improve the nutrition, health and education, particularly of children and their mothers; 2) support the family economy "trying that the home has sufficient resources for children to complete their basic education ", 3) to share responsibility and involve all family members in social welfare activities and 4) promote community participation and support the actions undertaken, for the benefit all families on education and health services.

From 2002 *PROGRESA* becomes the Human Development Program (*OPORTUNIDADES*), continuing the strategy employed, preserving its main features and integrating new shares in order to increase the access of families living in poverty. *OPORTUNIDADES* focuses on a cash transfer and food supplements to attend children at school and the supervision of their health levels. By 2007 *OPORTUNIDADES* benefited 5 million families in 2,444 towns and municipalities and 92.961 where (approximately 30% of the beneficiary families) were in the States of Veracruz, Chiapas and Oaxaca (SEDESOL, 2008). *OPORTUNIDADES* contributes to achieve four objectives outlined in the National Social Development Programme: i) reducing extreme poverty, ii) generating equal opportunities for poor and vulnerable groups, iii) supporting

the development of skills of people in a position to poverty and iv) strengthening the family business by encouraging participation and community development (SEDESOL, 2003).

From the perspective of the National Education, the program is consistent with the objectives of: i) advance towards equity in education, ii) to provide a quality education appropriate to the needs of all Mexicans; iii) promote social participation in education. Under the National Health Program, OPORTUNIDADES contributes to the following objectives: i) reducing inequality in health; ii) improving the health of Mexicans and iii) ensuring fairness in health financing. The OPORTUNIDADES program represents a change of policy vision in overcoming poverty that began in the first instance and continued the PRONASOL and PROGRESA programs by owning efforts, on five guiding principles such as equity, comprehensiveness, transparency, social cohesion and responsibility.

OPORTUNIDADES with the expansion of the geographical coverage extends to semi-urban localities, educational supports helping young people to complete their high school education and also provides support in the transition to the productive stage. Finally, OPORTUNIDADES program uses a formal methodology applied for the selection of poverty lines with the purpose of identifying the target population. As can be easily inferred by the above, PROGRESA and OPORTUNIDADES fall just inside the second part of the scheme proposed by the World Bank of increasing the capacities of the poor and marginalized, contributing to local development.

Conclusions

Then we reiterate that the truth, in our view, is that transfers based programs do not affect the transformation of the structures the causes of poverty. Poverty programs still appear unrelated to other areas of economic policy. These programs seem to treat the poor people as a group of persons out of production, distribution, exchange and consumption. That is why the development and implementation of programs to combat poverty within this system cannot end it, though perhaps alleviate or significantly decrease. Poverty is functional to the system, so therefore could not and cannot be canceled by these types of programs.

Political manipulation of social programs, rather than the exception, it seems to be the rule in Mexico's recent history. As shown throughout this paper, an approach to explore ways of political use of social programs is to understand the construction and functions of intermediaries between the government and its beneficiaries. Social programs, without transparency or control mechanisms by the society, have historically been used for electoral purposes in Mexico.

A number of mechanisms to limit the power of intermediaries that are generated between the resources allocated to promote local development and combat poverty have been launched. However, given the limitations of government capacity is not possible to break the vicious circle of intermediaries for other purposes guiding resources to combat poverty and social backwardness.

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"Single Mothers" Between Law and Civil Society in Morocco

El Batoul Majbar

Sidi Mohamed Ben Abdelah University, Morocco

0271

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Abstract

Throughout the world, Morocco is cited as an example of moderation and progressiveness in its attitudes and laws regarding women in the Middle East and North Africa (MENA) region. However, despite this perception, several Moroccan laws contain deep inequalities for women, which marginalize and stigmatize them. Single mothers are among those women who suffer from this marginalization. The term "Single Mother" refers to women who have children outside the framework of legal marriage; they and their children are defined by law as illegitimate. Hence, they are unprotected by law. In Morocco, and in most Arab countries, the issue of single mothers is still a taboo, however women's organizations are working hard to challenge this stigmatization as well as to help these women gain their rights. Single mothers are considered as a source of trouble, shame and dishonor; therefore, they are totally rejected by society. Indeed, social stigmatization, criminal repression and legal discrimination marginalize these women and their children, and impact on their ability to live a normal life. In the scope of this presentation, I will be dealing with the issue of single mothers in Morocco; I will examine the Moroccan legal context surrounding unwed mothers as well as the NGO's initiatives that protect the right of unwed mothers and their children in Morocco. I shall argue that even though these women are supported by the non-governmental organizations, they are still marginalized and not protected by law.

Introduction:

Throughout the world, Morocco is known by its restraint and progressiveness in its attitudes and laws regarding women in the Middle East and North Africa (MENA) region. Despite this perception, several Moroccan laws still contain deep inequalities for women and marginalize them. Single mothers or unwed mothers are among those women who suffer from stigmatization and rejection in Morocco, they are legally and socially marginalized not just in Morocco but in all the Arab countries (MENA).

This Article will shed lights on the issue of single mothers more specifically from legal and social perspectives; it will examine the Moroccan legal context surrounding unwed mothers as well as the NGO's initiatives that protect the right of single mothers and their children in Morocco. I shall argue that even though these women are supported by the non-governmental organizations; they are still overlooked and not protected by law.

The term "Single mother" or "unwed mother" in this study refers to every woman having children outside the framework of legal marriage. In Morocco; and in all the Arab countries (MENA) region, Single Mothers represent a source of shame and illegitimacy. Discussing such an issue remains among the taboos that no one could talk about. However, and thanks to the feminist movement that works hard to strengthen the situation of women in Morocco, this phenomenon has become debatable and discussed throughout all the Media.

It is difficult to gather the statistics that precisely depict the number of unwed mothers in the Arab world. However, "*Official statistics and field studies in the Arab countries indicated that the number of single mothers is on the rise*"¹. In a big country like Egypt "*Egyptian courts have registered more than 12000 paternity cases during the last few years, most of these are related to children born of common law or "ORFI"*"² marriages"³. Moreover, in Tunisia "*statistics show that about 1200 births occur out of legal wedlock every year*"⁴. In Morocco, the number is increasing. According to the 2004 report of the **National Institution of Solidarity with Women**

¹ Nabil Mohammad. "Single Mothers and Children without Identity". Available at <http://arab-reform.net/spip.php?article654&lang=en>. 30 January 2007. 19/02/2011

² Orfi marriage is a simple contract drawn between the two partners and the two witnesses

³ Nabil Mohammad. "Single Mothers and Children without Identity". Available at <http://arab-reform.net/spip.php?article654&lang=en>. 30 January 2007. 19/02/2011

⁴ <http://www.ashoka-arab.org/ar/morocco/aicha-ech-channa.html> 19/02/2011

in Distress (INSAF) association, “two of every five births are considered illegitimate, these numbers do not take into account births that happen at home, abortions, or cases of infanticide¹”. Another report published by the same (**INSAF**) states that the number of unmarried mothers in 2009 was 27200 compared with 11016 in 2008 and 5040 in 2002 in CASABLANCA. These numbers are underestimated because they do not include hidden cases.

Many factors contribute to the rise of the number of single mothers among which poverty which lead to the dropping out of education, marriage promises and lack of sexual education which remains among the important factors that contributes in being a single mother. These factors put them in a situation where they suffer from marginalization, exploitation and rejection.

a) Poverty

Poverty plays an important role in the fact of being a single mother especially in rural areas where most of people still live under poor conditions. According to Loubna Skalli’s work: “*Women and Poverty in Morocco: The Many Faces of Social Exclusion*” (2001), “*Poverty has many faces and dimensions. Its dominant face in Morocco is becoming increasingly female, rural, illiterate and unskilled*”². This idea was much emphasized while I was doing my interviews with 30 single mothers from the “**Association Solidarité Féminine**” (**ASF**) in Casablanca; the majority of single mothers that I talked with were coming from poor areas where they have no accessibility to education as well as working skills, all of them argued that they were working as housemaids because of the need of income to support their families. “*Non-governmental organizations estimate that about 90 percent of single mothers in Morocco were housemaids in their childhood*”³. All this stresses the idea that the issue of single mothers is more common in the underprivileged areas where these women suffer from suppression and marginalization.

b) Lack of education

Education in Morocco is free and compulsory from 6 till 15 years old. Poor parents especially in rural areas who do not know the importance of education most of the time withdraw their children especially girls from schools due to the demands for

¹ Soumaya Naamane Guessous Chakib Guessous. *Grossesses de La Honte* (Pregnancies of shame). Association Solidarité Feminine and le Fennec, Mai 2005. P.29 (My translation of the « Autrement dit, à Casablanca, chaque jour naissent au mois deux enfants illégitimes. Faut-il rappeler que ces chiffres

² Loubna H.Skalli. “Women and Poverty in Morocco : The Many Faces of Social Exclusion” , Palgrave Macmillan Journals, 2007.p.73

³ <http://streetkidnews.blogspot.com/category/1/africa/morocco-streetkid-news/> 24/02/2011

household income which often push children to work. This problem lies often among girls whose parents are uneducated and lacking awareness. Therefore, many girls are affected. They leave their homes at a very early age in order to work outside; hence, they become victims that can be easily manipulated by the others.

Parents in rural areas do not value girl's education; they think that it is not of necessity since they will go to their husband's house and become housewives. They deny that educated women are better informed about their legal rights. If women are educated, they will have the skills, the self confidence and the information they need to become good mothers, workers, and citizens as well as they will have the power to defend themselves in the case of any problem.

C) Marriage promises

Another factor that represents a great portion in the fact of being a single mother is "marriage promises" meaning when a man promises to marry a woman but he does not. *According to Association Solidarité Feminine (ASF)'s survey on 276 unmarried women, 73% are from marriage promises*¹. In 2003, INSAF association published the result of a survey on 684 single mothers arguing that *74% of illegal pregnancies are due to marriage promises*. In fact, due to the complexity of living and the protection they suffered from in their villages, and because of the excess of independence and freedom these girls have in the city once they arrive, they lose their identities and they start setting up relationships with young men, these relationships are based on marriage promises which are never achieved. Feeling unsecured, these girls seek to find someone who could protect or cover them; as it is said in our Moroccan culture "*man is the cover of a woman's head*".

Single mothers trust their lovers and start abiding by their needs waiting for the day of marriage. However, they find themselves pregnant before that day comes. Having a baby out of wedlock is considered a sin and it is punishable by law. "*Women who become pregnant outside of marriage can be imprisoned for prostitution, although the law is reportedly seldom enforced*"², this is the reason why the majority of men who are "the fathers" of these children deny their responsibilities and ask the mothers for

¹ Myriam Tinouch Stucki « *Dire la maternité célibataire Étude menée entre Casablanca et Rabat, Maroc* ». Mémoire de licence en ethnologie, 2004 p.90 (My translation of « L'enquête menée par ASF auprès de 276 mères non mariées l'ayant contacté parle de différents types d'agressions à l'origine de la grossesse illégitime : 73% issues de promesse de mariage (non tenue).

² Refugee Review Tribunal, RRT RESEARCH RESPONSE, Research Response Number: MAR31637, Morocco, 3 May 2007 p.1

“abortion” which is also forbidden in Islam. All these problems are due to the naivety that these categories of girls suffer from.

d) Lack of sexual education

In Morocco, the expression of “sexual education” is a part of the taboos that characterizes the society of this country, talking about sexuality remains among the illegitimacies that no one could discuss. Sexual education as a part of the programs of the academic study exists neither in the primary nor in the secondary academic programs. “*What is taught is provided in the form of scientific knowledge of the anatomy of the sexual organs and of the biology of fertilization.*”¹ In Morocco, there is a big difference between boys and girls; boys are encouraged to display their genital organs, while girls are supposed to hide their intimacy. Therefore, women remain secluded and pushed to the margin. Mothers tend to talk with their girls but they do not talk about sexual education as they talk about the obligation to preserve the virginity which remains the important characteristic in Moroccan society. “*The principal role of the mother is to obligate her daughter to preserve her virginity with a talk full of modesty and “hchouma” shame*”². In such a situation, children, especially girls, are the most affected since they lack communication with their parents in topics that could help them in the future.

Based on my interviews, I have noticed that lack of sexual education has affected many girls in the association where I have conducted my survey. The majority of single mothers in the (ASF) did not know that they could get pregnant without losing their virginity. Hence, they ignore the fact of being pregnant till they find themselves in the sixth or fifth month of pregnancy. At that time they find themselves obliged to keep the baby as they could not abort it. Many mothers in ASF reinforced that they have never talked with their parents in topics related to sexuality. According to Aboubakr HAKAKAT, psychotherapist and sex therapist in Casablanca, it is the lack of sex education that helps in spreading the phenomenon of single mothers. He argues that *the majority of girls who has sexual problems with men do not even know the seriousness of the problem, because they had no education in the Family*³. Indeed, many factors contribute in the fact of being a single mother. These factors make them suffer from all kinds of marginalization, exploitation and social stigmatization as well as a lack of legal protection.

¹ <http://www2.hu-berlin.de/sexology/IES/morocco.html#3> 25/05/2013

² <http://www2.hu-berlin.de/sexology/IES/morocco.html#3> 25/05/2013

³ Myriam Tinouch Stucki « *Dire la maternité célibataire Étude menée entre Casablanca et Rabat, Maroc* ». Mémoire de licence en ethnologie, 2004 P.93 (my translation of « Selon Aboubakr HAKAKAT28, psychothérapeute et sexologue à Casablanca, C’est le manque d’éducation sexuelle qui fait que le phénomène des mères célibataires se répand, Je peux vous dire que la plupart des jeunes filles qui ont eu des problèmes sexuels avec les hommes ne savent même pas le sérieux du problème, parce qu’elle n’a pas eu une éducation dans la famille »).

The following section, will discuss the issue of single mothers from a legal perspective. It will try to answer the following question: What is the position of the penal code over illegitimate pregnancies in Morocco?

➤ Penal Code

Sexual relations outside marriage are illegal in Morocco. According to the penal code “*pregnancies outside the wedlock are considered Illegitimate by the penal code as a result of series of crimes*”¹. Article 490 of the Penal Code stipulates that “*all persons of opposite sex who are not related by marriage, and have sex with each other, are punished by imprisonment of one month to one year*”², additionally, article 491 states that “*any married person convicted of adultery is punished by imprisonment of one to two years, the prosecution is exercised only on a complaint from offended spouse. However, if one of the spouses is out of Morocco, the adulterous spouse may be prosecuted automatically at the initiative of the prosecution*”³.

Abortion is also criticized by the penal Code. It is illegal unless deemed necessary to protect the mother’s health and conducted by a medical doctor (art.453). According to Article 449 of the Penal Code, *voluntary abortions are illegal, with harsh penalties levied on women who seek abortions*. In 2008, the Morocco Planning Foundation claimed that *nearly 600 illegal abortions take place every day, carried out in secret, sometimes under inhumane and medically unsafe conditions*⁴. Moreover, it is not legally permitted in cases of rape or incest. As a result, many single mothers find themselves obliged to become mothers even though the pregnancy has resulted from illicit sexual relation between two consenting parties or rape. Here we notice that the

¹ Soumaya Naamane Guessous Chakib Guessous. *Grossesses de La Honte* (Pregnancies of shame), Association Solidarité Feminine and le Fennec, Mai 2005 P.172 (My translation of « la grossesse illégitime est considérée par le code pénal comme résultante de toute une série de délits »).

² Penal Code. Dahir 25/7/1993, loi 11.99. El BADII Edition. 2001. Article 490 Morocco (My translation of « Sont punies de l'emprisonnement d'un mois à un an, toutes personnes de sexe différent qui, n'étant pas unies par les liens du mariage, ont entre elles des relations sexuelles »).

³ Penal Code. Dahir 25/7/1993, loi 11.99. El BADII Edition. 2001. Article 491 (my translation of « Est punie de l'emprisonnement d'un à deux ans toute personne mariée convaincue d'adultère. La poursuite n'est exercée que sur plainte du conjoint offensé. Toutefois, lorsque l'un des époux est éloigné du territoire du Royaume, l'autre époux qui, de notoriété publique, entretient des relations adultères, peut être poursuivi d'office à la diligence du ministère public »).

⁴http://www.magharebia.com/cocoon/awi/xhtml1/en_GB/features/awi/features/2009/12/04/feature-0115/02/2011

legislature has only thought of the physical health of the mothers and he has forgotten the mental health of these mothers. The girl who carries in her womb the fruit of rape or incest of relationship will suffer all her life. As Soumaya Naamane Guessous argued in her work *Grossesses de La Honte* (Pregnancies of shame) 2005, “*obliging a girl victim of rape or incest to keep her pregnancy and give birth to her child is like dooming her to live ill all her life*”¹.

In case of rape, the man is punished from five to ten years. If the rape is committed against a minor under eighteen years, a person known by its weak mental faculties, or a pregnant woman, the punishment is imprisonment from ten to twenty years (Art.486). This exists only on papers but if a rape is reported to the police, they will order a medical examination and an investigation, physical proof of rape is required for the woman to be believed and for the crime to be prosecuted. Additionally, many judges eliminate the act of rape if the victim accompanied her rapist in private places such as houses or cars as, one single mother whom I interviewed from Casablanca argued. Another single mother called Fatima argues that “*when she became pregnant, she went to fill an application with the police and requested a judicial declaration of the paternity of her child; the judge declared her to be a prostitute and fined her 500 Moroccan Dirhams*”². In short, it can be said that single mothers are not protected by the penal code, they are in fact considered as prostitutes and they are punished for that. The family code has also worked hard to improve the situation of women, the following section will examine the new changes that the Modawana brought for women in order to strengthen their situations and will try to answer the following questions: What are the efforts made by the Moroccan feminists to change the situation of single mothers in Morocco? What is the position of the new family code over single mother?

➤ **The Family Code (Moudawana)**

Recently, Moroccan government has worked deeply to improve the status of women in Morocco by reforming the Family Code or the Moudawana. These efforts have taken many years in order to reach the Moroccan people. However, despite the legal

¹ Soumaya Naamane Guessous, Chakib Guessous. *Grossesses de La Honte* (Pregnancies of shame). Association Solidarité Feminine and le Fennec, Mai 2005 P.194. (My translation of « *Obliger une fille victime de violet/ou d'inceste à garder sa grossesse jusqu'à terme et à enfanter, c'est la condamner à vivre malade le restant de sa vie* »).

² Personal interview with Hassania, Association Solidarité Féminine client, in Casablanca, Morocco (July 13, 2010).

changes, *women in Morocco continue to face discriminatory attitudes from men, and corruption in the judicial system which prevents them from asserting their rights.*¹

The Moudawana is not only a set of laws that exists on paper, but it is a significant step of legal changes that protect women and children's lives. It has brought many changes in terms of age of marriage, divorce, and polygamy. The Moudawana has also reached the situation of single mothers and it has come with a new element that could help to some extent single mothers and their children.

The new family code has introduced a new element which is the right to have a paternity certificate if it is recognized that the pregnancy has been in the engagement period. I mean here by 'engagement' the traditional Moroccan one; when the family of the pretender came to demand the girl for marriage.

(Article 156):

If an engagement takes place by an offer and acceptance but for reasons of *force majeure* the marriage contract was not officially concluded, and during the engagement period the engaged woman shows signs of pregnancy, the child is affiliated to the engaged man on the grounds of sexual relations by error when the following conditions are met:

- a- If the two engaged person's families are aware of the engagement, and if the woman's legal tutor, if required, has approved the engagement;
- b- If it appears that the engaged woman became pregnant during the engagement period;
- c- If the two engaged persons mutually acknowledge that they are responsible for the pregnancy.

These conditions are established by a judicial decision not open to appeal.

If the engaged man denies responsibility for the pregnancy, all legal means may be used to prove paternity.¹

¹Steven Erlanger and Souad Mekhennet. "Family Code Gets Nudge, but Women Seek a Push". N.Y. TIMES, August 19, 2009, available at http://www.nytimes.com/2009/08/19/world/africa/19tangiers.html?_r=1&emc=eta1 6/04/2011

A single mother has to prove that she was engaged to her partner either by photos, videos, or sworn statements by family and neighbors. Otherwise, her child will not benefit from “legitimate” paternity. This act is beneficial for the situation of single mothers but, at the same time it is detriment because in Morocco, most families celebrate the engagement between the concerned people (husband’s and wife’s families). Hence, the majority of single mothers find themselves unable to prove their engagement, therefore, their children are affected.

Another element that could be used to prove the paternity is the DNA test. However, this latter is not reachable of every single mother. “*The new family code requires this test only in the case of pregnancies occurred in the engagement period*”². Many people misunderstood the utility of the test; they have thought that it is accessible to every pregnant girl outside marriage; however it is required only for the girl that have the proof that she was engaged to the father of her child as it is argued by Naima AME the lawyer of the Association Solidarité Feminine³.

According to my data collection based on my personal interviews, the woman must be able to prove that she was engaged to the father before a judge can order a man to undergo DNA paternity tests. The proof should be photos, videos, sworn statements by family and neighbors. Additionally, the woman must pay the cost of the paternity test (about 3500 DH) if she is the one who requests the test, and it is rare that the court orders the test to be carried out. In some circumstances, if there is enough evidence, the court will make a judicial decision establishing the paternity of the father. Once paternity is established, fathers can be required to pay child support, though it is infrequently enforced. For example, the father of Mouna’s child agreed to accept paternity of her son and file the necessary paternity paperwork only if Mouna agreed to waive her right to child support.⁴ Mouna was among the cases that gained the paternity certificate, Hassania and other girls in the Association Solidarité Feminine did not because they do not have the prove; Hassania, a single mother from Fes, was engaged to the father of her child but when she became pregnant, he refused to marry

¹The Moroccan Family Code (*MOUDAWANA*) of February 5, 2004, an English translation of the original Arabic text, Global Right 2005.

² Soumiya Naamane Guessous Chakib Guessous. *Grossesses de La Honte* (Pregnancies of shame). le Fennec, Mai 2005. p.193 my translation of « le code de la famille n’exige ce test que dans le cas de grossesses survenues dans la periode des fiancailles officieuses ».

³ Personal interview with Naima AME the lawyer of Association Solidarité Féminine in Casablanca. Morocco. July 1, 2010.

⁴ Personal interview with Mouna, Association Solidarité Féminine in Casablanca. Morocco. July 13, 2010.

her. When she filed a paternity claim, the judge found her guilty of prostitution and refused to order a paternity test.¹

Having an unknown father's name was one of the most serious problems that children born outside the wedlock had to suffer. However, in the late nineteenth, and thanks to the efforts made by the civil society, *single mothers became allowed to give her family name to her child if her father or brother gives her their permission*². If the family of the mother does not know about her pregnancy, the civil status service *gives single mothers a list of names from which she can choose one for her child*³. All this has been made by the effort of the activists, feminists and associations that seek to improve and develop the situation of women and especially single mothers and their children.

As it is stated above, the situation of Moroccan women has been improved thanks to the efforts made by the Moroccan feminist. However, discrimination and violence against women still exist, and single mothers are among the categories of women that suffer from it. Because of that, Moroccan feminists called for many changes among them the reform of Moudawana which was a great step for them to voice out their demands. Civil Society has also played an important role in supporting women in difficult situations especially single mothers. "Solidarité Féminine" is one of the first associations that started working on the issue of single mothers. The next section will illustrate the work done by this association to support those women and help them reintegrate society after being rejected and ostracized.

➤ Civil society

The first non- governmental organization that dealt with the issue of single mothers was Association Solidarité Féminine run by Aicha Echana. This woman remains an icon in Morocco when it comes to human and civil rights for single mothers and their children. For more than 30 years, Aicha Ech Channa has been the defender and the

¹Personal interview with Hassania, Association Solidarité Féminine, Casablanca. Morocco. July 13, 2010.

² Soumaya Naamane Guessous Chakib Guessous. *Grossesses de La Honte* (Pregnancies of shame). Association Solidarité Féminine and le Fennec, Mai 2005 P.185 (My translation of « à partir de la deuxième moitié des années quatre-vingt-dix, grâce aux associations, on autorisa la mère à donner un nom à son enfant. L'enfant peut porter le nom de famille de sa mère, à condition que le père de la mère ou son frère lui en donne l'autorisation »).

³ Soumaya Naamane Guessous Chakib Guessous. *Grossesses de La Honte* (Pregnancies of shame). Association Solidarité Féminine and le Fennec, Mai 2005 p.186 (my translation of « Si la mère na pas informé sa famille de sa grossesse et de son accouchement, ce qui est courant, les services d'état civil lui donnent une liste de noms parmi lesquels elle en choisit un pour son enfant »).

public spokes person of single mothers. In 1985, she founded the association ASF in Casablanca to provide services for the unmarried women and their children.

Aicha Ech Channa has deconstructed a social cultural taboo in order to change the social perception towards single mothers. Thus they could be transformed from a condemned population to a recognized one. She trains these girls to be independent and to rely on themselves. Additionally, she also advocates a legal reform that would make the biological fathers take the paternity tests and make them convinced of the importance of recognizing and supporting their children. Thanks to this work, 19% of single mothers have been married, 7.6% were reconciled with their families and 38.5 have found jobs.

More than 50 women receive training every year in literacy, human rights, cooking, baking, sewing, fitness services and accounting. The beneficiary participants as they call them in the association also receive daily child care and medical treatments in addition to social, psychological and legal support and counseling for better reintegration in their society.

ASF aims to establish a bond between the mother and the child. Rajae, a social assistant says, "Enabling a woman to nurse and care for her child for a short time leads her to change her decision to get rid of him and gives her an opportunity to become attached to her child and reconnect with him."

ASF also initiates contacts with the single mother's family in order to bring them closer, search for a means of reconciliation and urge acceptance of their daughter's new circumstance. They also help single mothers register the child's civil status to protect them from being abandoned or subject to an adoption in which the child loses all connection to his biological mother. Through this process, the child is given a family name, even if borrowed, rather than the term "Father: Unknown", which could affect the child throughout his life. The association also provides emotional and psychological support for single mothers in order to make them overcome their psychological troubles.

Thanks to the efforts made by the associations, and civil society, single mothers have become able to register their children in the registry of civil status and obtain a family booklet. They have also gained the right to request a paternity test AND, and a paternity certificate to prove the paternity of their children conceived out of wedlock.

In short, single mothers have gained numerous rights that enabled them to ameliorate their situation. However, none of these is actually applicable by law for 100%. Laws which are supposed to protect women's rights exist only on paper. They are often not applied in reality while their implementation would take a long time to be executed.

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The Subnational Local Governance Index in Mexico

Mario Eduardo Ibarra Cortés, Louis Valentin Mballa

University of San Luis Potosi, Mexico

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Abstract

Governance as an instrument of government requires an interactive public action, which acts by public policy networks made up by governmental and non-governmental actors. Identify the degree of ability to solve public problems that exist within subnational governments in Mexico indicates the existing governance level. In this sense, the Local Subnational Governance Index aims to reveal the ability of local governments to meet the needs of its population, making useful the resources available. The SILG integrates four components: the Social Backwardness, Institutional Capacities, Quality of Governance and Financial Capacity. It also shows that the difference between each municipal government and trends within each of the regions of Mexico. Currently there is no doubt that in Mexico there is great inequality between subnational governments. The size of them and the political party that governs variables that are not determined, but if the degree of poverty and the region to which they belong, and it is therefore appropriate to examine each of the components in the particular SILG. From this instrument is expected to provide sufficient data to make decisions in public policy actions expected to promoting development in Mexico.

Key words: Index, Subnational, Governance.

Introduction

Understand the problems and insufficient local governments in Mexico, with the aim of improving their ability to design public policies requires accurate updated information that allows having radiography of the institutional structure of local governments. It is from the data obtained in the various sections of the index to generate a tool to solve public problems, with emphasis on the situation arising for decision-making and action more efficient. This will identify the critical areas, highlighting the aspects that go into a right path and will file a local empowerment agenda in the medium and short term.

The questions we seek to answer in this paper are: What is the social backwardness of Mexico subnational governments?; What institutional structure subnational governments have?; What profile officials governors and sub-structuring public action?; What financial management capacity have?; What is the degree of confidence of society in public action?

As the level of government closest to the organization, this should become a space for dialogue with the local community, allowing adding it in the process of public policy making. Therefore it is important to answer the questions what are the scope of citizen participation in public action sub? What types of actions have been developed to build local governance? The proposal seeks to provide evidence of the extent of citizen participation in the management sub.

Seen in the context in which subnational governments are Mexicans participation faces rigid governance structures, very limited, usually restricted to federal government programs subject to operating rules, which require the incorporation of the citizenship. However, public participation is characterized by its low representation, is informative and the best, consultative, very few deliberative participation experiences.

Governance and institutional capacities

The urbanization and industrialization of the State as well as the plurality and political change, have created the need for new governance processes, which is why the design and implementation of public policies; note that the internal factors of the public administration, gain importance on external factors, which are related in a different way and in different aspects to the policy making. This situation has generated a coordinated institutional framework, which is structured and operates as a complex network.

The existence of political networks generates decentralization of government functions and focus on the result of the public policy rather than the compliance of the standard also creates the conditions for further discussion or dialogue in the public policy. Therefore, overcoming inequality, which remains the major public problem in Mexico, is possible due to the structure and governance performance in subnational public administration.

The concept of institutional capacity can be defined as an organization or as rules. For purposes of this paper, it will be considered as organization, so it is

related to the achievement of the objectives of subnational government. If the achievement of objectives has to do with the needs of society, then it is related to the governance, which can be defined as the ability to coordinate the activities of governmental and non-governmental actors in solving public problems. In this sense, public action is considered the central aspect of government, which should be considered as an interactive government with its environment.

Governance is an instrument of government that helps to resolve the problems of efficiency (use of resources), effectiveness (achievement of goals) and credibility (degree of confidence in the government). It arises in a context where resources are insufficient to deal with public problems and these problems, which exceed in magnitude and complexity to the government, which requires the incorporation of other social actors.

The complexity of public problems demands greater organizational capacity, which often goes beyond the institutions and agencies of government that requires deliberation spaces, interaction and public and private partnership. That is why it has generated a process of empowerment of society and its involvement goes beyond consulting their opinions.

In this sense, governance means government processes, where the offices of the public administration are an actor in the solution of public problems. That leads to the functional dynamic between moving hierarchical governance processes and interactive governance processes. For this reason, governance is based on public policy networks.

In short, governance means organizational structures and governance processes that generate the conditions for a cooperative public action. By that way, there is a transparent and democratic framework in the coordination of processes. The main feature of governance is the plurality of social actors with capacities to intervene in the solution of public problems. Consequently, governance depends on efficiency of the organizational setup of the government, and it's linked to issues such as society participation, accountability, presence of appropriate legal framework and political stability.

From this approach, institutions are the agendas of priorities, by improving the regulatory framework, increasing the quality of governance and fiscal strengthening. The idea of governance is immersed in these approaches to strengthening institutional capacities. According Lusthaus (1995), the definition of institutional capacities has different interpretations. One of them was conceptualized as building and strengthening organizational structures, while others relate to the exchange networks between actors of different nature. The components that can explain it would be: effectiveness (achievement of objectives), efficiency (resource use), relevance (response level of needs) and sustainability (economic viability). According to these definitions, institutional capacity refers to the organizational ability to achieve a goal that means the ability to drive public policy efficiently, effectively and cooperatively.

A definition of institutional capacity applicable for governance refers to the efficiency of formal and informal rules that significantly affect public action. Therefore, it is linked with the ability to structure organized spaces for the

coordination and aggregation of diverging interests, in order to design public policies that reflect the public interest and ensure the efficient presentation of public services. So institutional capacities can be seen as processes or results. As processes are evaluated by longitudinal analysis in regard to efforts to governance, while such results are measured by indexes. Specifically in the case of subnational governments, institutional capacity refers to the existence of management tools that enables a local government performs efficiently. According to this concept, institutional capacities are manifested in three categories: regulatory framework, organizational structure and human capital profile.

Another aspect to consider is the combination of institutional governance capabilities. Local governance necessarily includes strengthening local institutional capacity and requires a process of participatory public policy-making, creating a style of government acting through policy networks.

These components are to be proposed here to build a tool to assess levels of subnational governance of Mexico, through the following indicators: Social Backwardness Index (SBI), Institutional Capacities Index (ICI), Quality of Governance Index (QGI) and Local Financial Capacity Index (LFCI).

The role of local governments in the governance

As level of government closest to the people, the subnational government has more direct knowledge of the needs and opportunities facing their communities. That allows the government to channel the demands of society and to coordinate with other actors to share the responsibility of governing.

Local governments are public spaces in which any need or demand is immediately apparent. Here, in a space of interaction between actors from different nature to the design and implementation of collective public action. Local governments can also interact with other levels of government in its quest to increase the quality of public action.

Many of the most pressing problems facing local public problems are directly related to the limited capacity of local governments; for example, the low level of lifestyle is due in large part to the lack of clean water, sewer, and unplanned human settlements, inadequate public transport and poor quality and public insecurity.

Social Backwardness Index (SBI)

The SBI developed by the National Council for Evaluation of Social Development Policy (CONEVAL) allows subnational governments sort high to low social backwardness 2010. This indicator combines in a single index variables such as education, access to health care, basic housing services, quality and spaces in it, and household assets. With the SBI, it's possible to identify Social Backwardness in sectors like education, health, public services and housing quality. The

information provided by this Index, enable public policy actions to greater equality in the country.

The information considered by CONEVAL basis for the construction of this indicator was taken from the National Census of Population and Housing 2010. Here, for purposes Municipal Governance Index is weighted, the results with 25%, as measured by three criteria: low social backwardness, social backwardness and social backwardness medium high.

Institutional Capacities Index (ICI)

In subnational governments, institutional capacity refers to the existence of management mechanisms that allow the quality of public action; then in organizational terms requires three conditions: a regulatory framework that governs the structure and operation of local government, the professional profile of authorities, officers and employees and technology infrastructure.

Institutional capacities are closely linked with organizational elements of local governments, so that structures, processes, actors and results of the action are the central aspects of the levels of the institutional capacities of subnational governments.

The relationship between governance and institutional capacities, leads to the conception of governance ability to design, implement and evaluate public policy solutions cooperatively with stakeholders. The recognition of this concept will understand local public administration shares responsibility with the federal government and local states, subjected to processes of transparency and accountability.

The institutional capacity for the Subnational Index for Local Governance consists of the following aspects: structure of local government administrative capacity and planning and organization skills. The measurement criteria were threefold: low institutional capacity, institutional capacity medium and high institutional capacity.

Quality of Governance Index (QGI)

The concept of quality of governance is understood as the interaction between the institutional structure (the general framework of rules that directs the action of the government) and management practices (decisions and actions) to face public problems. The quality of government is determined by the performance of government and public administration, and not the result of government action, allowing the understanding of the role of the exogenous and endogenous factors in public action, which is not necessarily linked to good or bad exercise of government.

The QGI was constructed from the National Survey of Quality of Government 2011, which consisted of public perceptions of four components: political stability, control of corruption, participation and quality of public services.

In the first component was measured degree of political conflict, impartiality of government, treatment of officials, improving public services, the degree of credibility and satisfaction of the government. In the second assessment component of the public perception regarding the phenomenon of corruption as a phenomenon both government and society, and in which aspects of the public is present. In terms of participation, we evaluated the degree of involvement of society in the subnational government affairs. Finally, as it pertains to public services, we measured the degree of efficiency of the municipal administration to address the demands of society.

The Local Financial Capacity Index as a tool for local governance.

This indicator is constructed from a prejudiced sum of two components: the ability to generate income (financial autonomy, financial dependence, fiscal capacity and tax effort) and debt level (level of indebtedness and financial cost). These components show the ability of subnational governments to raise funds (either through their own fund or by obtaining credits). This subindex has the ability to show how local governments should generate their own resources, as well as the way they manage the balances.

The course has subnational public finance is that higher income-generating capacity greater their own governance, and that these resources will allow them to finance their infrastructure needs and public services autonomously and participatory as to generate a local level are not subject to regulations from other levels of government, as well as to increase their own revenue collection will allow local governments greater opportunities to obtain credit on better terms for the support account for their income. Subnational own revenues have an important role in this indicator, however, emphasizes that the tax structure of the municipalities is very limited, as they have few powers and tax collection levels are restricted.

It should be noted that taxes authorized by local governments have a credit balance of those with levels of urbanization, the most important property tax, so it is these municipalities that have higher levels of revenue collection, thereby reducing their dependence on federal transfers. In regard to public debt, high levels of indebtedness and financial cost, cause negative changes to the LFCI. The opposite effect occurs when debt levels are reduced.

According to the LFCI, Subnational governments can be classified into three groups according to their position:

1. Total financial capacity: refers to those local governments that have greater earning power themselves.

2. Average local financial capacity: includes local governments that are considered have an average capacity of generation of income.

3. Low local financial capacity: refers to local governments that have a high financial dependence on the resources from the federal government.

The importance of own revenue collection in municipalities and also have low debt levels observed in the position they were in this indicator.

Subnational Local Governance Index as a tool for the analyst of public policy (ISGL)

Governance is the necessary condition for the performance of an efficient and effective local government. In this context, this paper presents a methodology to build information on institutional capacities of subnational governments in Mexico, seeking to identify the levels of effectiveness, efficiency and credibility in solving public problems.

This concept of local governance is an appropriate benchmark for assessing progress and outstanding local governments in Mexico in the exercise of their functions. Especially institutional capacity is not perceived only as adequate mobilization of resources, but also the ability to bond with society to solve their problems. In short, governance as an instrument of government depends primarily on the regulatory framework, but also political stability levels surrounding the town, the ability to generate their own financial resources, interaction levels and reliability that you have with the local society.

The existence of an index to measure local governance does not guarantee the improvement of their public action, but if it helps to promote a results oriented culture and strengthen local public institutions differently. In addition, the collection of data to measure the results of municipal governance is seen as its main strength, as it comes from the governments and citizens. Accordingly, the construction of local governance, as measured by results, is a means to transform the way in which subnational governments are using resources in a particular environment.

Final considerations

Local governments in Mexico suffer from institutional weaknesses in the process of making of public policies that seek to solve public problems. The story told in this level of government is very weak institutions, which does not let you raise your level of compliance with the objectives and goals, and their efficient use of resources, and prevents it from acting in an environment of social credibility. Local governments in Mexico are still far from a strategic role in the development of the state, its institution building agenda is broad, ranging from strengthening their capacity to shape public policy, own revenue collection, to open up spaces for participation. Undoubtedly, the social, economic state requires a more active local government. The risk of maintaining weak

institutional structures of subnational government, with public finances dependent on the resources and programs of the federal government and lack of continuity in local policies is very high for the state, it will increasingly lose their levels of growth, stagnate democracy and social inequalities persist.

In summary, the diagnosis seeks to confirm the institutional fragility of subnational governments in Mexico. The different components of the index provide evidence of institutional gaps that are structured and operate most of such governments, which help to understand the institutional problem beyond bad governments. The institutional weaknesses, the lack of resources, insufficient human resources and lack of technical infrastructure determine the weakness of governance at subnational governments in Mexico.

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Japan and Japanese Image in Turkish Newspapers

Ömer Bakan, Ahmet Tarhan, Kadir Canöz

Selcuk University Communication Faculty, Turkey

0416

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Abstract

Country image can be defined as the total of beliefs and impressions that one has about a particular country. Country image is created by different kinds of knowledge which are gained directly or indirectly over long periods of time. Today, having positive image in the eyes of foreign countries are very important for all the countries. Because, a positive image can provide many benefits to a country. There might be a lot of different elements effecting the formation of country image. One of the most important elements is the news about the country on the media. Country image may be created, gained, and changed through media representation. On Turkish Media Japan and Japanese are in the different news. To analyse these news will come in useful to understand the image of Japan and Japanese on Turkish Media. It is also important to analyse the national image of a foreign country to develop mutually beneficial relationships among those countries. Analysing media news will benefit to investigate the representation of national image of Japan. This study aims to analyse the media coverage of Japan news 1-31 March 2013, looking at the news used by three selected Turkish newspapers, Zaman, Posta and Hurriyet. The number of the academic studies concerning the image of Japan in Turkish media is very limited. The study has real importance in this respect. In the study, content analysis method has been used. The news about Japan and Japanese was mostly neutral. But positive news was more than negative news. The top three news topics about Japan and Japanese people are economy, culture and art and natural and nuclear disasters.

Keywords: Country image, Japan, Japanese, news, newspaper

Introduction

Country image can be described as thoughts, beliefs or impressions of people about a particular country. A country's image may differ in the eyes of its own citizens and foreigners. Country image may change by time.

Nowadays having a good image is important for all countries. Because thanks to the created positive image, it will be easy to publicise and to be acceptable for this country among the world. Thus, the way for sharing its own values will be opened. And this situation will provide important opportunities to be a strong brand for the countries which have positive images. For this reason, it can be said that countries can be evaluated as a brand (Gültekin, 2005: 128). Country image can affect the global competition position of a country (Zeng et al., 2011: 320).

There are some kinds of affects to gain an international positive image for a certain country. The real aim is to gain a positive reputation in the eyes of target groups. Today, meanwhile people and organizations can be evaluated with their images, countries are evaluated with their own international image. For this reason lots of important policies are produced to have positive images in the mind when the country's name is called. To have a good international image should be seen as a governmental policy. Today a country's international image is one of the most important ways which provide effectiveness in the eyes of international public opinion (Gültekin, 2005: 128).

There are different kinds of ways to be able to determine the image of a country in the eyes of the other countries. One of them is to examine the news on the press of another country about the country and its citizens. When it is examined that how and how much the country and its citizens are taken place in the news contents, it is possible to gain information about the image of that country. In Turkey there are few scientific studies to determine the images of foreign countries by using the news in printed media. The studies about the representation of Japan in Turkish newspapers are rarely met. The aim of this study is to determine the image of Japan in Turkish daily newspapers. To determine the representation of Japan and Japanese people in Turkish press is important to understand the image of Japan and Japanese people in Turkey. To determine the image of Japan in Turkish daily newspapers is thought to provide support to international public relations area.

Theoretical Background

A country's image is formed according to its history (Boulding 1959: 122), geography, touristic attractions, products, famous people, political speech, and some social problems such as rebellions, citizenship rights, attacks to environment, racism, economical problems, poverty, violence and other infringements of law (Kotler ve Gertner 2002: 251). In addition to these, it can be said that there are lots of other factors for the formation of a country's image. According to Dowling political attitude, cultural reflections, brand images, political and cultural leaders, tourists, tourism potential, export, sports activities and sports stars, scientific successes and

media news are taken place among these other factors (Peltekoğlu 2007: 577). As we understand from the context, media news are one of the factors that effects the formation of a country image.

In literature there are some studies that examine country image by using media representations. One of them is to define the image of Turkey in South Korea Press. In this study The Korea Times and The Korea Herald newspapers were examined. In the study five categories which was named as "politics", "economy", "sports", "history/culture" and "others" were formed. As a result of this study, it was determined that Turkey was represented mostly with political news (Çolakoğlu and Çolakoğlu, 2005: 147).

In Turkey, the number of the studies to determine the image of Japan are limited. In a study that aims to compare Japan and Chinese images, it was determined that general country images of these countries were differentiated. Finally, in the study, it was found that the image of Japan is more positive than the image of China (Kurtuluş and Bozbay, 2011: 274).

It was determined that the images of well-developed and developing countries are differentiated. Japan and China are mostly differentiated according to their specific product image. According to the respondents, the image of digital photograph machines produced in Japan have more positive than the image of digital photograph machines produced in China (Kurtuluş and Bozbay, 2011: 274).

The Ministry of Foreign Affairs of Japan commissioned a Turkish research company to conduct a survey about the image of Japan in Turkey from February 14 to March 14, 2012. The opinion poll was carried out face to face in 10 major cities in Turkey and featured the participation of 1,012 people between the ages of 18-65 (http://www.mofa.go.jp/announce/announce/2012/5/0522_03.html).

When asked how much interest they had in Japan, 61.6% of respondents answered "very interested" or "rather interested". Moreover, 83.2% of the respondents reported that Japan-Turkey relations were "friendly relations" or "almost friendly relations". Regarding aspects of interest in Japan, 60.3% of the respondents replied "science/technology", far more than the 29.7% that answered "culture/arts". On the topic of areas in which the two countries should strengthen their cooperative relations, 56.4% of the respondents replied "science/technology". With regard to impression of the Japanese, the most given two answers were "careful/diligent/honest (70.8%)" and "respect traditional values (31.6%)". When asked which country is an important partner of Turkey, Japan was in second place with 13.7% of the responses, behind "Islamic nations" at 29.9% (following Japan was the "United States" (8.4%), "Middle Eastern countries" (7.5%), the "EU" (6.9%), and "South Korea" (6.5%)). With regard to which country is an important partner of Turkey in East Asia, 45.4% of the respondents said "Japan", followed by "South Korea" at 27.6% and "China" at 4.9% (http://www.mofa.go.jp/announce/announce/2012/5/0522_03.html).

When asked the respondents about their awareness of matters relating to the earthquakes that struck both Turkey and Japan in 2011, many Turkish people answered that they were aware of activities, with 55.7% answering that they were aware of the sending of a rescue team to Japan by Turkey's Government for the Great East Japan Earthquake, 65.2% saying they were aware of the sending of emergency aid to Turkey by Japanese Government for the October 2011 earthquake, and 63.0% saying they were aware that Japanese NGO members that had visited Turkey to assist with disaster relief had fallen victim to an earthquake in Van. In addition, 60.5% said that their impression of Japan had become better in the wake of the passing of the member as a result of the earthquake in Van

(http://www.mofa.go.jp/announce/announce/2012/5/0522_03.html).

As for visits to Japan, 2.8% of respondents answered that they have visited Japan. When asked the reason why they had not visited, the order of answers was such that 39.4% said, "Japan is geographically far away", 21.7% said "expensive country", and 15.1% said "lack of information on Japan". In addition, about tourism to Japan, Turkish people expressed interests in different aspects in the order of "ancient cities/history (temples and shrines and so on; 39.4%)", "shopping (29.8%)", and "watching traditional culture (Kabuki and so on; 29.0%)" (http://www.mofa.go.jp/announce/announce/2012/5/0522_03.html).

Methodology

In this study, content analysis method was used. In the study web sites of the most read daily newspapers in Turkey were examined between the dates 1-31 March 2013. Their web sites addresses are www.hurriyet.com.tr, www.posta.com.tr, www.zaman.com.tr. In a monthly period, 459 news which include "Japan" and "Japanese" words in three newspapers were analyzed. After coding process, all data were transformed to computer and evaluated. In the analysis of data, frequency distribution and Chi-square Tests were applied.

In the study, only the news which include the words "Japan" and "Japanese" were examined. Although these words were used by some columnists in their columns, they were not used in the study.

Research questions are:

- 1-What are the numbers and distributions of the news which include the words "Japan" or "Japanese" according to the newspapers?
- 2-What are the distributions of the news which include the words "Japan" or "Japanese" in the title and content?
- 3- What are the distributions of the news which include the words "Japan" or "Japanese" according to their topics?

4-What are the quantities of using photographs in the news?

5-What kind of approaches to Japan or Japanese are there in the news contents?

In the study, firstly the numbers of the news included the terms Japan and Japanese and their distributions according to the newspapers were determined. Then, the distribution of the news according to topics and which the top topics were determined. Finally the approaches of the representers of these news towards Japan and Japanese were examined. Because these approaches may form various impressions on the readers of the news.

The effect of each news on the readers about the country and its citizens was evaluated by using Çolakoğlu and Çolakoğlu's (2005: 142-143) criterion as "positive", "negative" and "neutral". During this evaluation, if we foresee a prejudice towards Japan and Japanese in the news, this news was evaluated as a negative news. Even if the news did not have bias, if it is presented with unpleasant and negative style for the readers about Japan and Japanese, this kind of news was taken place in negative category. On the other hand, the news which praise Japan and Japanese or give a positive impression about Japan and its citizens was taken place in positive category. Neutral news can be identified as the news which doesn't create neither positive nor negative impressions about Japan and Japanese for the readers or the news which sometimes include both positive and negative properties together.

Findings

In this part; the distribution of the news according to the newspapers about Japan and Japanese, the percentage of photograph usage in the news, news' topics and approaches in the news are studied.

1- Distribution of the News Which Include the Term "Japan" or "Japanese" according to the Newspapers

Between the dates 1-31 March 2013, 459 news which include "Japan" or "Japanese" words in the newspapers in Turkey were analyzed.

Table 1: Distribution of the News in the Newspapers Which Include the Term “Japan” or “Japanese” in Their Contents

| Newspapers | n | % |
|-------------------|------------|------------|
| Hürriyet | 155 | 33.8 |
| Posta | 39 | 8.5 |
| Zaman | 265 | 57.7 |
| Total | 459 | 100 |

As seen on the distribution of the news in the newspapers which include the term “Japan” or “Japanese”, the most news with 57.7 % were taken place in Zaman Newspaper (Table 1).

2- The Distributions of the News Which Include the Words “Japan” or “Japanese” in the Title and in the Content

The tables 2 and 3 show the distributions of the news which include the words “Japan” or “Japanese” in the title and in the content.

Table 2: Distributions of The News of Which Titles Include the Words “Japan” or “Japanese”

| Newspapers | n | % |
|-------------------|------------|------------|
| Japan | 67 | 14.6 |
| Japanese | 45 | 9.8 |
| None | 347 | 75.6 |
| Total | 459 | 100 |

Although the titles of the news include “Japan” word with 14.6 % and “Japanese” word with 9.8%, 75.6 of the titles of the news don’t include none of these words.

Table 3: Distributions of The News Which Include the Words “Japan” or “Japanese” in Their Contents

| Newspapers | n | % |
|-------------------------|------------|------------|
| Japan | 264 | 57.5 |
| Japanese | 64 | 13.9 |
| Both Japan and Japanese | 131 | 28.5 |
| Total | 459 | 100 |

As seen on the Table 3; 57.5 % of the news include the word “Japan” , 13.9 % of the news include the word “Japanese” and 28.5 % of the news include both of the words “Japan” and “Japanese” in their contents.

3- The Distributions of the News which Include the Words “Japan” or “Japanese” According to Their Topics

The table 4 shows the distributions of the news which include the words “Japan” or “Japanese” according to their topics.

Table 4: Distributions of the News which Include the Words “Japan” or “Japanese” according to Their Topics

| News Topics | n | % |
|-------------------------------|------------|------------|
| Economy | 129 | 28.1 |
| Culture and art | 68 | 14.8 |
| Natural and nuclear disasters | 66 | 14.4 |
| Science and technology | 54 | 11.8 |
| International politics | 49 | 10.7 |
| Sports | 35 | 7.6 |
| Others | 58 | 12.6 |
| Total | 459 | 100 |

According to their topics, economy with 28.1 % , culture and art with 14.8 % and natural and nuclear disasters with 14.4 % are taken place in the news which include the words “Japan” or “Japanese” (Table 4).

Table 5: The Distribution of the Topics of the News According to the Newspapers

| News topics | Economy | Technology | Natural and nuclear disasters | Culture and art | Sports | International politics | Others | Total |
|--|---------|------------|-------------------------------|-----------------|--------|------------------------|--------|-------|
| Newspapers | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) |
| Hürriyet | 24.5 | 11.6 | 10.3 | 20.6 | 16.1 | 3.2 | 13.5 | 100.0 |
| Posta | 10.3 | 35.9 | 17.9 | 12.8 | 0.0 | 7.7 | 15.4 | 100.0 |
| Zaman | 32.8 | 8.3 | 16.2 | 11.7 | 3.8 | 15.5 | 11.7 | 100.0 |
| $\chi^2=28.97, df=4, p< 0.01$ | | | | | | | | |

The distribution of the topics of the news according to the newspapers show a significant difference ($\chi^2=74.83, df=12, p< 0.01$). Although Zaman Newspaper has got more news about the topics of economy, science and technology, natural and nuclear disasters and international politics, Hürriyet Newspaper has got more news about the topics of culture and art and sports (Table 5).

Some of the news which include the words Japan and Japanese were about train crash, atomic bomb, nuclear power plant, snow storm, car brands, Japan stock Exchange, Japan-China islands dispute, anti-nuclear protests, dust clouds leaving mainland China affect Japan, Turkish people who live in Japan from Ordu city, Formula 1 Japan Grand Prix, Independence Day Celebration in Japan, world's smallest printed book, Japan gives Canada 1 million dollars to help for shore clean up of Tsunami.

4- The Quantities of Using Photographs in the News

The Table 6 shows the quantities of the photographs in the news with the words “Japan” or “Japanese”.

Table 6: The Quantities of the Photographs in the News

| Photographs Usage | n | % |
|-------------------|------------|------------|
| Yes | 246 | 53.6 |
| No | 213 | 46.4 |
| Total | 459 | 100 |

Eventhough photographs were used with 53.6 % of the news which include the words “Japan” or “Japanese”, 46.4 of the news which include the words “Japan” or “Japanese” was not used with the photographs (Table 6).

5- Kinds of Approaches to Japan and Japanese in the News’ ContentsThe Table 7 and 8 show the kinds of approaches to Japan and Japanese in the news contents.

Table 7: Approaches to Japan in the News Which Include the Word “Japan”

| Approaches to Japan | n | % |
|----------------------------|------------|------------|
| Positive | 23 | 8.7 |
| Negative | 10 | 3.8 |
| Neutral | 231 | 87.5 |
| Total | 264 | 100 |

8.7 % of the news which include the word “Japan” is positive, 3.8 % of the news is negative and 87.5 % of the news is neutral.

Table 8: Approaches to Japanese People in the News Which Include the Word “Japanese”

| Approaches to Japanese People | n | % |
|--------------------------------------|-----------|------------|
| Positive | 5 | 7.8 |
| Negative | 1 | 1.6 |
| Neutral | 58 | 90.6 |
| Total | 64 | 100 |

7.8 % of the news which include the word “Japanese” is positive, 1.6 % of the news is negative and 90.6 % of the news is neutral.

Among the newspapers there is no significant difference according to the approaches to Japan and Japanese in the news contents.

According to the results of chi-square test, there is no significant relationship between the news topics and approaches to Japan and Japanese people. In each news topics, the approaches to Japan and Japanese are mostly neutral. But positive approaches are more than negative approaches.

Science and technology news about Japan and Japanese people are positive and neutral news. There isn't any negative approach towards Japan and Japanese in these news.

Some examples about the positive news in the newspapers are the supports of Japan to Turkish government for the preparation of earthquake, strength of Japan buildings, smart walking stick for old people, glasses for lazy people, long life period of people, the number of patents per person, quality of Japan universities and decrease of unemployment percentage.

According to some positive news about Japanese people; they have very high reading book level, useful inventions for human being such as transplantation, long life period and they are the most reliable people according to Turkish people.

Another positive news is that a Japanese voluntary, Atsushi Miyazaki's name was given a public school in Turkey. He is an important person who died getting trapped under debris while he was helping Turkish people during Van Earthquake.

There wasn't any negative news about Japanese people. But there is some negative news about Japan. Health scandal, abuse to Korea during the period Korea was a colony of Japan, decreasing the level of export and very small houses with high rent costs are negative news.

While the categorization; health, education and domestic politics were evaluated in the "Others" category. In some health news negative approaches to Japan were determined. There are also negative approaches to Japan in some economy, international politics, culture and art news.

Results

Between the dates 1-31 March 2013, 459 news which include "Japan" and "Japanese" words in three mostly read newspapers in Turkey were analyzed. The most news with 57.7 % in the newspapers which include the term "Japan" or "Japanese" were taken place in Zaman Newspaper.

It was determined that in 53.6 % of this news photographs were used. But some of the photographs used in the news were not dealt with Japan and Japanese people.

The top three news topics about Japan and Japanese people are economy, culture and art and natural and nuclear disasters.

The news about Japan and Japanese was mostly neutral. But positive news was more than negative news. In the positive news Japan was mentioned with its success and new inventions in science and technology, strong economy, crisis management during natural disasters, educational quality.

The negative news about Japan was determined under the topic of economy, international politics and health. But there was not any negative news about Japanese people.

Finally it can be said that the image of Japan and Japanese people in daily Turkish newspapers is positive.

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*Brand Marks as Messengers of Publicity for the City: The Level of Awareness of the
City Brand Marks*

Kadir Canöz, Ömer Bakan, Ahmet Tarhan

Selcuk University, Turkey

0424

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Abstract

The metropolitan cities which are getting bigger and bigger together with the increasing of mechanization in production have caused some changes in people's way of life and habits. In today's world many cases such as fast spread of mass culture, typical habits of eating, drinking and having fun, revival of tourism, emerging new brand marks of almost every products are considered as results of this mass production. While the fact that goods and services in the same sector come nearer to one another in quality every passing day is making way to lots of new options for the producers, it has also caused various problems of marketing from the angle of manufacturers and managers. The most efficient tool to be used to overcome this disorder and disturbance is commonly said to be "branding". "Brand" has been being widely used for a long time as not only specific to products but also to cities and countries. In this context, branding of the cities are realizing with their historical past, national and international brands, successful and famous scientists, artists and politicians and internationally well-known institutions as well. Our work aims at putting forth the contribution of brands to publicity of the cities for consideration. On this account, a field survey that is used to test the information obtained through literature review was applied to the students and their parents who had come to the city of Konya in Turkey to be enrolled in the Faculty of Communication of Selcuk University. At the end of the research, awareness of the international brands in the city of Konya was tested. The results of analyses of the obtained data in three different categories shows that the most well-known politician is Prof. Dr. Necmettin Erbakan in the category of politics, the most well-known international company which predominantly produces sugar, biscuits and chocolate is "Torku" in the category of economy and the most well-known public institution is Selcuk University in the category of education in the city.

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INTRODUCTION

The ongoing growing population of mankind has led to emergence of families, tribes, villages and small cities. The first of these small communities formed survived by collecting food and animal hunting in groups of 25-50 people. However, depending on the varying needs of an ever-growing population required social division of labor in order to meet the needs of housing, security, health, food, and entertainment. In particular, industrial revolution brought about specialization in many areas. Previously only farming, military, masonry, played an important role in the continuation of social life while after the industrial revolution professions such as blacksmithing, foreperson, machine operator, advertising, engineering and architecture turned out to give direction to the communities.

While the industrial revolution led to the abundance of production it also forced sociological changes in the community and caused changes in the lifestyles. Trade unions, non-governmental organizations, major metropolitan cities and brands have been formed as a result of this effect. Mechanization of production caused the standardization of goods and pushed a new search for the manufacturer and the manager who want to differentiate in the market. Competitive advantages for being distinctive from the similar manufacturers were found in becoming a “brand” or as a term named “branding” which was a novel idea then.

While the vast majority of cities are similar in having experienced in meeting the sociological needs of today's society (-entertainment, education, health, security, and so on. -) they only differ with their images and brands.

In this study, it was aimed to reveal to what extent Konya is recognized by the society through its national brands. This study is important in that it demonstrates how national brands affect recognition and awareness of cities. Because, apart from products and services, brands are also embedded within the characteristics of the city where they are manufactured. For this purpose, the students and parents were surveyed when they came to register for the first time at the university following the principles of field research method.

1. BRANDING IN SOCIAL LIFE

Brand, a seller or any group of supplier, is a name, term, sign, symbol, shape or combination of the above significations that identify the goods and services, (Wood 2000:662). It can also be referred to as a sign of any kind such as letters, a logo or a shape, which provides distinguishing features from those of goods and services of an organization's competitors within the market. (Pinar 2005:45).

Today, consumers receive brand messages through huddle with friends, a newspaper article, shop presentation format of the product on the shelves, the way they were behaved by the customer service or the talking style of company's phone operator (Yurdakul 2012:205-206).

In today's vast productive economies, brands, create desire and loyalty for their products and services that consumers through differentiation while increasing the demand. On the other hand, consumers love, trust, and are inspired by the attractive brands so as to add a "meaning" to their lives.

From the perspective of companies, creating a brand means establishing trust within the community because trust is considered as the first step in the relationship between the consumer and brand. People choose and use not only what they need but also the brands, which comply with their philosophy of life and their character. Once this choice is made, then, the validity of the idea that similar products are equal to each other declines and the brand is placed in a unique place in the eye of the customers. (<http://www.temelaksoy.com>).

2. CONTRIBUTION OF BRANDS TO IMAGES OF CITIES

The spread of the Industrial Revolution and the mass media in the world not only globalized the world but also urbanized. Today, more than half of the world's population live in urban areas. Although cities offer a more complicated and stressful life to the people, they are considered to be very important indicators of civilization displaying an improvement in people's welfare and incomes.

In the new economic system of our globalizing world, it has been a crucial issue that how many brand cities countries possess (<http://www.temelaksoy.com>). In today's conditions, brand cities are created by bringing one or more characteristics to the fore. According to Kotler et al (1999) brand image of the cities are formed as a sum of residents' beliefs, ideas and impressions of the city. Through this process, awareness, judgments and cultural environment of the individuals play a vital role. (Tolungüç 2000: 23-25).

The image of cities is not only based on the activity of a single issue of a city's geography, political discourse, famous citizens, products, tourist attractions and historical background (Boulding 1959: 122) but also on the city-owned political attitudes, cultural reflections, political and cultural leaders, tourists, tourism figures, sporting events, sports stars, scientific achievements, artistic and sporting achievements, international organizations, successful festivals, trade shows, public leaders' positive opinions about the city, lobbying activities carried out, and their images of export and owned brands (Gültekin 2005: 136-138).

Today's cities form various images with the brands they possess. For example, Tokyo has a technological and innovative image with "Toshiba and Sony"; Milan is famous for its "Milan FC" football club, history and history of fashion week; Cologne inspires a successful and productive image thanks to "Mercedes" and Washington, DC has a powerful image with its "White House and the Capitol ". So much so that, today, some cities have become more important and popular with their great brands than the countries. For example, Venice, Florence, Rome are "valuable and famous" than Italy,

as in the cities of Vienna (Austria), Casablanca (Morocco)
(<http://www.temelaksoy.com/>) .

All in all, there has been a great need of such a study that aims to find out to what extent politicians, national brands and national corporations, which recall Konya are known and to what level they contribute to the promotion of Konya.

3. METHOD

3.1. POPULATION AND SAMPLING

A field survey was carried out in order to investigate the recognition level of national brands of Konya and well-known politicians among the people from various demographical characteristics (newly enrolled college students and their parents) during their registration at Selçuk University Faculty of Communication. The sample for this study was based on a purposive sampling. Respondents were those who agreed to participate among all present for the registration at the Faculty of Communication. The data was comprised of the responses from 364 people using face to face interview technique. As a result of preliminary investigations, 350 questionnaires were taken into the analysis process.

3.2. DATA COLLECTION TOOLS

A questionnaire consisting of two sections was prepared to determine the recognition level of Konya's national brands using the responses of new students and their parents. In the first section there were items to determine to what extent Konya's national brands and politicians were known using a 5-point Likert-type (1 = I don't know by no means, 2 = I don't know, 3 = Neutral, 4 = I Know, 5=I Know well).

The second part of the survey includes items socio-demographic characteristics of the students and parents such as identifying respondents' education level, occupation, monthly family income, marital status, sex, age, city of residence.

The prepared questionnaire form initially was reviewed by two specialists in terms of face validity and necessary amendments were made before administration according to their views. Also the questionnaire was piloted on 50 subjects in order to ensure the intelligibility and see the possible problems in the administration.

3.3. DATA ANALYSIS AND TESTS

The field survey was conducted face to face with the newly enrolled students and their parents at Selçuk University Faculty of Communication between, 3-7 September 2012. The data obtained were processed electronically using the SPSS 15.0 statistical software.

In the analysis of the data, demographic characteristics of the respondents and the level of recognition of national brands originated from Konya were examined by using descriptive statistical techniques such as mean and frequency distributions. In order to evaluate Konya's national brands and their levels of recognition fully and objectively, arithmetic means were evaluated in the form of three different categories namely: politicians, corporations and brands. As a result, the resulting groups are saved as a variable and Independent Samples T-Test was used to look for possible relationships between two groups; parents and students. Significance level was set at .05 and only those, which are equal or lower than this value were evaluated.

4. FINDINGS AND DISCUSSION

4.1. SOME CHARACTERISTICS S OF PARTICIPANTS

Some of the findings related to the demographic characteristics of the respondents are stated as follows:

- Of the participants (N = 350), in terms of gender, 55.4 % were male and 44.6 % were female. These percentages obtained were at a sufficient level to make comparisons in terms of gender.

- In terms of marital status, of the respondents 78.3 % of the respondents were single, 20.0 % were married and 1.7 % were divorced.

- Under the category of age distribution, 23.4 percent of participants were under 18 years of age, 52.3 % were between the ages of 19 to 23, 2.6 % were between the ages of 24 to 29, 1.6 % were between the ages of 30-35 and 20.3 % were in the 36 + age group.

- In terms of educational level, 0.3 percent of the respondents stated that they were illiterate while 4.3 % were graduated from primary school, 4.6 % from secondary school, 78.0 % from high school. 12.6 % of the respondents from university and only 0.3 % stated that they had a postgraduate degree. Results showed that the majority of respondents had either high school degree or a major degree.

- According to the respondents' occupations, 3.2 % were workers, 6.9 % were civil servants, 1.7 % were shop owners, 4.0 % were self-employed, 5.1 % were retired, 2.0 % were housewives and 77.1 % were students. These percentages showed that this study included participants from a variety of occupational groups.

- The findings from descriptive analysis of family total income of the respondents showed that the lowest income was 100 Turkish Liras whereby the highest was 5000 Turkish Liras. If the range is categorized, of the respondents 16.9 % get less than TL 740, 48.0 % get TL 741-1500, 25.7 % get TL 1501 - 2500 and 9.4 % get higher than

TL 2501. According to these findings, the majority of the participants were from lower and middle income groups.

- 78.6 % of respondents were students while 21.4 % were parents of those.

- In order to categorize the province that the respondents reside, findings revealed that 33.1 % lived in Central Anatolia, 26.0 % lived in Marmara, 12.4 % were from Black Sea Region, 9.1 % lived in Aegean Region, 8.9 % lived in Mediterranean, 6.1 % were from Southeastern Anatolia and 4.4 % were from Eastern Anatolia Region.

4.2. LEVELS OF RECOGNITION OF KONYA'S NATIONAL BRANDS

4.2.1. Levels of Recognition of Konya's Politicians

There are several factors that make up the image of cities. These can be listed as the city's architecture, its economy, its natural structure, institutions, and well-known politicians. Of these, particularly politicians, they provide information about the city's political standing, economic structure, religious beliefs and reaction to social phenomena. In order to determine Konya's politicians' levels of recognition, Table 1 shows the list of mean order of according to their levels of recognition. According to Table 1., respondents mostly recognize Prof. Dr. Necmettin Erbakan (M=3.82), while the rest of list is occupied by Prof. Dr. Ahmet Davutoğlu (M=3.40), Konya PM and Minister of Foreign Affairs; Tahir Akyürek (M=2.32), the mayor of Konya; Mehmet Keçeciler (M=2.16), former minister and Atilla Kart (M= 2.13), Member of Parliament.

Nation-wide these little-known politicians were Dr. Serdar Kalaycı (M= 1.84), mayor of Meram district followed by the Mayor of Meram district, Mehmet Hançerli (M = 1.83). This is because, both of which are the mayors of the districts of Konya and the respondents were mostly from other cities.

According to the findings, the most well-known politicians of Konya were former Prime Minister Prof. Dr. Necmettin Erbakan and Prof. Dr. Ahmet Davutoğlu, Minister Of Foreign Affairs while the least well-known were Serdar Kalaycı and Mehmet Hançerli.

Table 1: Descriptive Statistics of Levels of Recognition of Konya's Politicians

| | Items | N | Min. | Max. | Mean | S.D. |
|---|---------------------------|-----|------|------|------|------|
| 1 | Prof.Dr.Nejmettin Erbakan | 350 | 1 | 5 | 3.82 | 1.31 |
| 2 | Prof.Dr.Ahmet Davutoğlu | 350 | 1 | 5 | 3.40 | 1.47 |
| 3 | Tahir Akyürek | 350 | 1 | 5 | 2.32 | 1.33 |
| 4 | Mehmet Keçeciler | 350 | 1 | 5 | 2.16 | 1.25 |
| 5 | Atilla Kart | 350 | 1 | 5 | 2.13 | 1.23 |

| | | | | | | |
|----|--------------------|-----|---|---|------|------|
| 6 | Faruk Bal | 350 | 1 | 5 | 2.12 | 1.18 |
| 7 | Uğur İbrahim Altay | 350 | 1 | 5 | 1.98 | 1.09 |
| 8 | Dr. Recep Konuk | 350 | 1 | 5 | 1.95 | 1.08 |
| 9 | Dr. Serdar Kalaycı | 350 | 1 | 5 | 1.84 | 0.94 |
| 10 | Mehmet Hançerli | 350 | 1 | 5 | 1.83 | 0.96 |

Significant differences were found between the two groups – parents and students according the recognition level of Konya’s politicians: Prof.Dr. Ahmet Davutoğlu ($t=-2.55$; $p< .05$), Mehmet Keçeciler ($t=-8.76$; $p< .05$), Atilla Kart ($t=-3.11$; $p< .05$), Faruk Bal ($t=-5.24$; $p< .05$), Dr. Recep Konuk ($t=-2.99$; $p< .05$), Dr. Serdar Kalaycı ($t=-3.00$; $p< .05$) and Mehmet Hançerli ($t=-3.02$; $p< .05$). According to the descriptive statistics table, parents were likely to recognize Prof.Dr. Ahmet Davutoğlu, Mehmet Keçeciler, Atilla Kart, Faruk Bal, Dr. Recep Konuk, Dr.Serdar Kalaycı and Mehmet Hançerli better than the students.

This finding shows that parents, compared to the students, were more interested in politics and therefore they recognize the nation-wide politicians better.

Table 2: Difference in the Levels of Recognition of Konya’s politicians between groups – parents and students.

| POLITICIANS | | N | Mean | t- value | Sig. |
|---------------------------|---------|-----|------|----------|------|
| Prof.Dr.Nejmettin Erbakan | Student | 275 | 3.82 | -0.18 | .855 |
| | Parent | 75 | 3.85 | | |
| Prof.Dr.Ahmet Davutoğlu | Student | 275 | 3.30 | -2.55 | .011 |
| | Parent | 75 | 3.78 | | |
| Tahir Akyürek | Student | 275 | 2.25 | -1.75 | .080 |
| | Parent | 75 | 2.56 | | |
| Mehmet Keçeciler | Student | 275 | 1.89 | -8.76 | .000 |
| | Parent | 75 | 3.18 | | |
| Atilla Kart | Student | 275 | 2.02 | -3.11 | .002 |
| | Parent | 75 | 2.52 | | |
| Faruk Bal | Student | 275 | 1.95 | -5.24 | .000 |
| | Parent | 75 | 2.73 | | |
| Uğur İbrahim Altay | Student | 275 | 1.92 | -1.92 | .055 |
| | Parent | 75 | 2.20 | | |
| Dr. Recep Konuk | Student | 275 | 1.86 | -2.99 | .003 |
| | Parent | 75 | 2.28 | | |
| Dr. Serdar Kalaycı | Student | 275 | 1.76 | -3.00 | .003 |
| | Parent | 75 | 2.13 | | |
| Mehmet Hançerli | Student | 275 | 1.75 | -3.02 | .003 |
| | Parent | 75 | 2.13 | | |

4.2.2. Recognition Levels of Konya’s National Brands

Table 3 presents to what extent Konya’s national brands were recognized by both the parents and students surveyed. According to the findings, in order of recognition, Torku ($M=3.26$) was the first of all followed by Atiker ($M=3.06$), Rapsodi ($m=2.73$), Pakpen ($m=2.67$) and Beysu ($m=2.37$). Less recognized brands were, New City ($M =$

1.87), Seden Triko (M = 1.87), Falez (M = 1.79), Konfull (M = 1.66), and Kenzel (M = 1.63).

Actually, the mostly known brands imply the importance of commercials on the national media and sponsorship, social responsibility events, corporate image and public relations and media relations. In this sense, most of the lesser-known brands were recognized by only those who had a special interest in that brand.

Table 3: Descriptive Statistics of Recognition Levels of Konya's National Brands

| | BRANDS | N | Min. | Max. | Mean | S.D. |
|----|------------------------|-----|------|------|------|------|
| 1 | Torku | 350 | 1 | 5 | 3.26 | 1.38 |
| 2 | Atiker | 350 | 1 | 5 | 3.06 | 1.46 |
| 3 | Rapsodi | 350 | 1 | 5 | 2.73 | 1.47 |
| 4 | Pakpen | 350 | 1 | 5 | 2.67 | 1.47 |
| 5 | Beysu | 350 | 1 | 5 | 2.37 | 1.37 |
| 6 | Ova Süt | 350 | 1 | 5 | 2.36 | 1.38 |
| 7 | Zade | 350 | 1 | 5 | 2.32 | 1.44 |
| 8 | Şeker Süt | 350 | 1 | 5 | 2.28 | 1.35 |
| 9 | Kompen | 350 | 1 | 5 | 2.22 | 1.32 |
| 10 | Selva | 350 | 1 | 5 | 2.22 | 1.35 |
| 11 | Cebel | 350 | 1 | 5 | 2.18 | 1.31 |
| 12 | Enka Süt | 350 | 1 | 5 | 2.14 | 1.27 |
| 13 | AKL Oto Gaz Sistemleri | 350 | 1 | 5 | 2.11 | 1.21 |
| 14 | Gesaş | 350 | 1 | 5 | 2.09 | 1.18 |
| 15 | Pak Siding | 350 | 1 | 5 | 2.06 | 1.27 |
| 16 | Huğlu Av Tüfekleri | 350 | 1 | 5 | 2.03 | 1.23 |
| 17 | Bürotime | 350 | 1 | 5 | 2.02 | 1.23 |
| 18 | İvrizsu | 350 | 1 | 5 | 2.01 | 1.19 |
| 19 | Hekimoğulları Unları | 350 | 1 | 5 | 1.90 | 1.10 |
| 20 | New City | 350 | 1 | 5 | 1.87 | 1.01 |
| 21 | Seden Triko | 350 | 1 | 5 | 1.87 | 1.05 |
| 22 | Falez | 350 | 1 | 5 | 1.79 | 0.99 |
| 23 | Konfull | 350 | 1 | 5 | 1.66 | 0.89 |
| 24 | Kenzel | 350 | 1 | 5 | 1.63 | 0.84 |

There was a significant difference between the two groups, parents and students, in the levels of recognition of brands such as AKL Oto Gaz Sistemleri ($t=-2.20$; $p< .05$), Pak Siding ($t=-2.28$; $p< .05$), Huğlu Hunting Rifles ($t=-6.92$; $p< .05$), New City ($t=-2.63$; $p< .05$), Seden Triko ($t=-2.04$; $p< .05$) and Kenzel'i ($t=-2.03$; $p< .05$). This refers to the fact that the brands mostly used by male participants were recognized better than the brands used by female participants. However, this finding may be biased due to the fact that most of the parents accompanying their children were male.

Table 4: Difference in the Recognition Levels of Konya's National Brands between the two groups – Parents and Students

| BRANDS | | N | Mean | t- value | Sig. |
|------------------------|---------|-----|------|----------|------|
| Torku | Student | 275 | 3.29 | 0.87 | .385 |
| | Parent | 75 | 3.13 | | |
| Atiker | Student | 275 | 3.07 | 0.40 | .689 |
| | Parent | 75 | 3.00 | | |
| Rapsodi | Student | 275 | 2.77 | 1.13 | .257 |
| | Parent | 75 | 2.56 | | |
| Pakpen | Student | 275 | 2.65 | -0.63 | .523 |
| | Parent | 75 | 2.77 | | |
| Beysu | Student | 275 | 2.42 | 1.16 | .247 |
| | Parent | 75 | 2.21 | | |
| Ova süt | Student | 275 | 2.40 | 1.03 | .300 |
| | Parent | 75 | 2.21 | | |
| Zade | Student | 275 | 2.26 | -0.67 | .498 |
| | Parent | 75 | 2.38 | | |
| Şeker Süt | Student | 275 | 2.28 | -0.03 | .973 |
| | Parent | 75 | 2.29 | | |
| Kompnen | Student | 275 | 2.19 | -0.79 | .427 |
| | Parent | 75 | 2.33 | | |
| Selva | Student | 275 | 2.19 | -0.72 | .472 |
| | Parent | 75 | 2.32 | | |
| Cebel | Student | 275 | 2.16 | -0.34 | .729 |
| | Parent | 75 | 2.22 | | |
| Enka süt | Student | 275 | 2.11 | -0.74 | .458 |
| | Parent | 75 | 2.24 | | |
| AKL Oto Gaz Sistemleri | Student | 275 | 2.04 | -2.20 | .028 |
| | Parent | 75 | 2.38 | | |
| Gesaş | Student | 275 | 2.03 | -1.77 | .077 |
| | Parent | 75 | 2.30 | | |
| Pak Siding | Student | 275 | 1.98 | -2.28 | .023 |
| | Parent | 75 | 2.36 | | |
| Huğlu Av Tüfekleri | Student | 275 | 1.80 | -6.92 | .000 |
| | Parent | 75 | 2.85 | | |
| Bürotime | Student | 275 | 1.96 | -1.53 | .125 |
| | Parent | 75 | 2.21 | | |
| İvrizsu | Student | 275 | 2.04 | 0.96 | .336 |
| | Parent | 75 | 1.89 | | |
| Hekimoğulları Unları | Student | 275 | 1.88 | -0.62 | .534 |
| | Parent | 75 | 1.97 | | |
| New City | Student | 275 | 1.80 | -2.63 | .009 |
| | Parent | 75 | 2.14 | | |
| Seden triko | Student | 275 | 1.81 | -2.04 | .042 |
| | Parent | 75 | 2.09 | | |
| Falez | Student | 275 | 1.74 | -1.85 | .064 |
| | Parent | 75 | 1.98 | | |
| Konfull | Student | 275 | 1.62 | -1.73 | .083 |
| | Parent | 75 | 1.82 | | |
| Kenzel | Student | 275 | 1.58 | -2.03 | .042 |
| | Parent | 75 | 1.81 | | |

4.2.3. Levels of Recognition of Konya's National Corporations

Table 5 shows the findings related to the level of recognition of Konya's nation-wide corporations with their means respectively. According to what is presented, "Selçuk University" (M = 4.24) was the first of all the corporations followed by the second "Konya Sugar" (M = 3.62), the third "Konya Sports Club" (M = 3.48), the fourth "Kontur" (M = 3.11) and the fifth "Özkaymak" (M = 3.06). Less recognized ones were "Akdeniz Cam" (M = 1.86), "Kongaz" (M = 1.86), "Komyapı" (M = 1.78), "Farmatur" (M=1.78), and "Seha Construction" (M = 1.61) respectively.

This finding reveals that the corporations offering goods and services for the whole nation were recognized better than those doing business only in a particular area.

According to these findings, the most well-known corporation of Konya was Selçuk University followed by Konya Sugar, Konya Sports Club, Kontur and Özkaymak Bus Companies respectively.

Table 5: Descriptive Statistics of Recognition Level of Konya'a National Organizations

| | Items | N | Min. | Max. | Mean | S.D. |
|----|---------------------|-----|------|------|------|------|
| 1 | Selçuk Üniversitesi | 350 | 1 | 5 | 4.24 | 0.98 |
| 2 | Konya Şeker | 350 | 1 | 5 | 3.62 | 1.45 |
| 3 | Konya Spor | 350 | 1 | 5 | 3.48 | 1.51 |
| 4 | Kontur | 350 | 1 | 5 | 3.11 | 1.54 |
| 5 | Özkaymak | 350 | 1 | 5 | 3.06 | 1.52 |
| 6 | Kon TV | 350 | 1 | 5 | 2.99 | 1.42 |
| 7 | Adese | 350 | 1 | 5 | 2.97 | 1.54 |
| 8 | İdeal Yurtları | 350 | 1 | 5 | 2.78 | 1.39 |
| 9 | Selçuk Ecza Deposu | 350 | 1 | 5 | 2.61 | 1.42 |
| 10 | Akinsoft | 350 | 1 | 5 | 2.51 | 1.38 |
| 11 | Adesem | 350 | 1 | 5 | 2.40 | 1.42 |
| 12 | Kombassan | 350 | 1 | 5 | 2.32 | 1.37 |
| 13 | Bera Hotel | 350 | 1 | 5 | 2.06 | 1.20 |
| 14 | İttifak | 350 | 1 | 5 | 2.02 | 1.20 |
| 15 | Dosteli | 350 | 1 | 5 | 1.98 | 1.16 |
| 16 | Bey Tekstil | 350 | 1 | 5 | 1.93 | 1.10 |
| 17 | Meramgaz | 350 | 1 | 5 | 1.91 | 1.09 |
| 18 | Koncam | 350 | 1 | 5 | 1.90 | 1.01 |
| 19 | Akdeniz Cam | 350 | 1 | 5 | 1.86 | 1.00 |
| 20 | Kongaz | 350 | 1 | 5 | 1.86 | 1.11 |
| 21 | Komyapı | 350 | 1 | 5 | 1.78 | 1.04 |
| 22 | Farmatur | 350 | 1 | 5 | 1.78 | 1.00 |
| 23 | Seha İnşaat | 350 | 1 | 5 | 1.61 | 0.92 |

The recognition level of participants of the study for national organizations of Konya like Selçuk Ecza Deposu ($t=-3.03$; $p< .05$), Kombassan ($t=-4.75$; $p< .05$), Bey Tekstil

($t=-2.49$; $p< .05$), Koncam ($t=-2.35$; $p< .05$), Akdeniz Cam ($t=-3.59$; $p< .05$) and Farmatur ($t=-3.15$; $p< .05$) has shown meaningful differences depending on their being students or parents. Considering the multiple-comparison table, it can be seen that parents attending the study have further knowledge of Selçuk Ecza Deposu operating in the health sector, Kombassan Holding operating in different sectors from construction sector to food sector, Bey Tekstil operating in textile sector, Koncam operating in glass manufacturing sector, Akdeniz Cam operating in glass siding and Farmatur transporting in tourism sector.

Table -6: Differences in the Recognition Level of Konya's National Organizations Depending on participants' being student or parent.

| ORGANIZATION | | N | Mean | t- value | Sig. |
|---------------------|---------|-----|------|----------|------|
| Selçuk Üniversitesi | Student | 275 | 4.28 | 1.51 | .130 |
| | Parent | 75 | 4.09 | | |
| Konya Şeker | Student | 275 | 3.65 | 0.65 | .516 |
| | Parent | 75 | 3.53 | | |
| Konya Spor | Student | 275 | 3.39 | -1.34 | .180 |
| | Parent | 75 | 3.65 | | |
| Kontur | Student | 275 | 3.10 | -0.20 | .838 |
| | Parent | 75 | 3.14 | | |
| Özkaymak | Student | 275 | 3.07 | 0.38 | .701 |
| | Parent | 75 | 3.00 | | |
| Kon TV | Student | 275 | 3.02 | 0.85 | .394 |
| | Parent | 75 | 2.86 | | |
| Adese | Student | 275 | 3.05 | 1.89 | .059 |
| | Parent | 75 | 2.68 | | |
| İdeal Yurtları | Student | 275 | 2.82 | 1.02 | .307 |
| | Parent | 75 | 2.64 | | |
| Selçuk Ecza Deposu | Student | 275 | 2.49 | -3.03 | .003 |
| | Parent | 75 | 3.05 | | |
| Akinsoft | Student | 275 | 2.57 | 1.72 | .085 |
| | Parent | 75 | 2.26 | | |
| Adesem | Student | 275 | 2.48 | 1.80 | .072 |
| | Parent | 75 | 2.14 | | |
| Kombassan | Student | 275 | 2.14 | -4.75 | .000 |
| | Parent | 75 | 2.97 | | |
| Bera Hotel | Student | 275 | 2.03 | -0.96 | .338 |
| | Parent | 75 | 2.18 | | |
| İttifak | Student | 275 | 1.96 | -1.78 | .076 |
| | Parent | 75 | 2.24 | | |
| Dosteli | Student | 275 | 1.94 | -1.22 | .223 |
| | Parent | 75 | 2.13 | | |
| Bey Tekstil | Student | 275 | 1.85 | -2.49 | .013 |
| | Parent | 75 | 2.21 | | |
| Meramgaz | Student | 275 | 1.88 | -1.00 | .315 |
| | Parent | 75 | 2.02 | | |
| Koncam | Student | 275 | 1.83 | -2.35 | .019 |
| | Parent | 75 | 2.14 | | |
| Akdeniz Cam | Student | 275 | 1.76 | -3.59 | .000 |
| | Parent | 75 | 2.22 | | |
| Kongaz | Student | 275 | 1.82 | -1.11 | .268 |

| | | | | | |
|-------------|---------|-----|------|-------|------|
| | Parent | 75 | 1.98 | | |
| Komyapı | Student | 275 | 1.77 | -0.50 | .613 |
| | Parent | 75 | 1.84 | | |
| Farmatur | Student | 275 | 1.69 | -3.15 | .002 |
| | Parent | 75 | 2.10 | | |
| Seha İnşaat | Student | 275 | 1.58 | -1.08 | .280 |
| | Parent | 75 | 1.72 | | |

CONCLUSION

Today production is no more a problem and technological capabilities make almost everything produced in sector base similar. However, the diversification of the products and services was formerly realized through differences resulting from production or quality, shape, presentation and package. Today it is possible to find a lot of products that are almost alike, of the same quality and that easily replace each other. Together with the producers, this situation has made the business of advertising industry harder as well. As a result of this necessity, the idea of “brand” has appeared so as to be notified and to diverse from the similar.

Brand, effective in both product diversion and creating customer loyalty, carries out its functions for today’s cities as well. In the era that is also called “brand age” and that we haven’t experienced yet, national and international brands are used as a distinctive feature in addition to different touristic and geographical feature in order to advertise a city. Furthermore, the brands owned by the city are presented as the most distinctive and remarkable feature of theirs. Cities are identified with their brands, they create images with their brands and they are mentioned with them.

In our research aiming to determine the recognition level of national and international brands contributing to the publicity of Konya, which is geographically the largest city and 6’th biggest city of Turkey considering population;

- The national politicians are deeply memorialized with Konya and best known by the public are former Prime Minister Prof.Dr. Nejmettin Erbakan, Minister Of Foreign Relations Prof.Dr. Ahmet Davutoğlu and Konya metropolitan Mayor Tahir Akyürek.

- Parents are more interested in politics than students.; they know national and local politicians (Prof.Dr. Ahmet Davutoğlu, Mehmet Keçeciler, Atilla Kart, Faruk Bal, Dr. Recep Konuk, Dr.Serdar Kalaycı and Mehmet Hançerli) better.

- Among the national brands of Konya is Torqu that is best known; Atiker and Rapsodi brands follow it. The common features of these are that they advertise to national mass communication media and they continuously carry on public relation activities. The least known brands of Konya are “Konful” and “Kenzel”, producing in special fields and appealing to only a limited number of interested customers.

-Parents have further information on the brand names in which mostly men are interested such as AKL Auto Gas Systems, Pak Siding, Huđlu Shotguns, Seden Tricot and Kenzel; they have less information on brand names of the products in which mostly women are interested. The main reason of this situation is that Turkish society is a male-dominant society and parents participating this study are mostly men

-Among the Konya organizations operating in national level the most known are “Selçuk University”, “Konya Őeker”, “Konya Sport Club”, “Kontur Bus Company” and “Özkaymak Bus Company” respectively. The least known ones are; “Komyapı”, “Farmatur” and “Seha İn Őaat”. This data shows that the national organizations producing services and products for the general society have a higher level of recognition than those producing in a special field and for a specific part of the society.

The parents know Selcuk Ecza Deposu working basically in the field of Medicine, Kombassan Holding working in a variety of fields from Construction to Food Industry, Bey Tekstil operating in textile sector, Koncam operating in glass manufacturing sector, Akdeniz Cam operating in glass siding and Farmatur transporting in tourism sector better than the students.

Consequently, just the natural beauties, historical tissues owned and hosting for the big organizations are not enough for the publicity of cities; they should have national and international brands as well. The recognition level of the brands owned makes very positive contributions to the publicity of cities.

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The logo for the International Association of Business Schools (iafor) is centered on the page. It consists of the lowercase letters "iafor" in a light blue, sans-serif font. The text is surrounded by a large, stylized circular graphic composed of several overlapping, curved lines in shades of blue and red, creating a sense of motion and global connectivity.

Political Participation in Sport Development of Thailand

Saowalee Kaewchuay, Mahidol University, Thailand
Sutus Sikaewkae, Institute of Physical Education Trang, Thailand
Eakrat Onnom, Chandrakasem Rajabhat University, Thailand
Patreeya Kitcharoen, Mahidol University, Thailand

0645

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Abstract

Today, sport competitions have gained popularity among people in Thailand. In particular, sports like football, basketball, volleyball, futsal, or sepak takraw, they require team spirit and loyalty of the fans. It is clear that the rapid growth of sport competitions in Thailand has been caused by more involvement of politicians. Sport tournaments also boost local economy. However, the local sport teams are used as marketing tool by not only business industries but also, by the political institution. Many politicians have entered sports by running football clubs and being bosses of sports associations among other channels. They apparently want publicity rather than financial gains. Sport provides a stage for public visibility, attention, and awareness. It is interesting to unveil the politics in sport. The study therefore aims to explore the politician's involvement conditions in the local sport teams, the roles and functions of the politician, the success factors. It also aims to examine the effects of politicians participation on the development of the team. The sustainability of the involvement is also clarified. A number of local sport teams, which have played outstanding in the past few years are taken as case studies. The politicians who have involved in the local sport teams and other stakeholders such as, players, managers, and the community are interviewed. This paper presents a qualitative view on how politician identities are created through the powerful vehicle of sport and outlines the implications it has as social phenomena.

INTRODUCTION

The popularity in sports in Thailand has been increased rapidly. People all over the country pay attention to almost all kinds of competitions. Medias report sport news regularly whether they are amateur or professional competitions.

It can be seen clearly that competitions. in Thailand were supported by companies or private sections. In the recent years Thai politics have involved more in sport management the local and international levels. The politicians have turned to be owners: managers, pendants of the clubs or team members. Some take part in raising fund, team development. Such phenomenon can be seen in football, futsal at all levels. Therefore, it might be worth to examine why Thai politicians involved in sport activities more and more. Why are they interested in sport and competitions? What would effect to benefit sport players? This should be studied and understood it properly.

Researcher wisher to study factors affected to participation in sport of politicians to develop sport in all levels and to see if they were succeed. All data from the study could be used as guidelines to develop sport associations or could be used examples to the public or interested person.

OBJECTIVES OF THE RESEARCH

1. To study the participation of politicians in sport development in Thailand
2. To study factors that affected the participation of politicians to sport development in Thailand

This research is Qualitative Research, the process of research

Sampling studied in this study are politicians who play important role in sport organizations in provincial levels and professional football in Thailand on Purposive sampling for is politicians

Population limitation sample space

Populations in this research are Thai politicians who play the roles in administration in football clubs in provincial levels and professional clubs in national levels by using purposive sampling.

Limitation in factors

Variables are factor affected to the participation of politicians to develop sport of the country, Thailand.

Dependent variable is participation of politicians to development of the country.

BENEFIT EXPECTED

1. To know what factors affected to participation of politicians in developing sports of Thailand.
2. To know the participation of politicians in developing sports of Thailand.
3. Data from the research could be used as to guide for other firms such as the Ministry of sports and Tourism and Sports Authority of Thailand. Sports Authority of Thailand could use this information

Method and procedure of research

This research is qualitative research, the process of research will be as follow;

Sampling

Sampling studied in this study are politicians who play important role in sport organizations in provincial levels and professional football in Thailand on Purposive sampling for is politicians

Data Collecting

1. Collecting data and the study from documentation subjects concerning of the study, from textbook, thesis, reports, personal portfolio, magazines, articles, and documents etc. Information from websites also included
2. The in depth interns were conducted with was selected politicians by appointments. The interview tape recorded. Set the criteria for informant selection: They must be politicians at local or national level. They must be recognized as person who continuingly support/ promote sports in Thailand.
3. Contacted the informants and informed them, requested their participation in the research and then make individually appointments.
4. The individual interviews had been conducted for 2 months. Each interview was taken place for one-two hours.
5. During the interview, tape-recording was used with the permission of the informants. Record data was transcribed into written form and sent to the informants to check the validity.

Data Analysis

The research on role and factors affected to the participation of politicians on sport development of Thailand is Qualitative research. There theory and ideas concerned are rese framework to describe and analyzed questions and data from interviewing including analyzing conclusion from documentations, analyzing articles, report and study form literature concerned.

Definition Used in the Research

Politicians mean persons whose occupations are politically from local levels to national levels who play an important role and participate in administrating professional football club in Thailand, such as consultant and committee of management.

Participation means to take part in developing sports of Thailand of politicians by using 5th National Sports Development Plan (2555-2559); consists of

Developing sports basivally and the public means participation of politician in developing sports basically. The objectives are to grow love in sport and prepare promptness both in physically and in mind. Wishing sports to be as games and exercises as daily routine and to build positive opinions, co-operation and sportsmanship to the children, youth in and out school system. To develop the quality of life of people by having good health from exercises with sufficient places which will have an effect no the development of economy and society of the country.

To develop sports for championship means the participation of politicians to develop sports for championship by supporting all groups of sportsmen, all levels to have chances to enter competitions in all levels and to develop abilities by focusing for championship both for national and international including to promote and develop sportsman continually and systematically and to be sufficient to needs to develop sports in all levels, from district, province, nation and international. To construct and develop stadiums, equipment and facilities for practicing and competing in all levels including to develop sports network in each level to join and administrate systematically and develop competitions for championship both national and international levels.

To develop sports for professional means the participation to develop sports for professional by supporting and developing international sports which are efficient and some Thai sports to be sustainable.

To develop all groups of sportsman and personnel concerning sports by developing sports in quality and spirit professional ethics and to support from institution to produce professional sportsmen and to support fan clubs of teams, from both in regional and central parts of Thailand. To develop management professionally by supporting to have fund and welfare for professional sportsmen to protect and keep rights or benefits. To motivate private sections to promote professional sports.

Factors affecting and sports development means courses to make politicians participate in sports development consist of 3 factors:

Outer factors mean factors affecting politicians in developing sports of the country such as policies about sports development of political party, roles and duties or occupations of politicians affecting sports development, etc.

Inner factors mean basic indicator. Factors which will indicate behavior in deciding of politicians that interest politicians to develop sports or to understand how to develop sports or to get support from persons or firms, etc.

Sports development of the country means to make sports in Thailand develop increasingly and could be competed in international levels efficiently with fame and income as well as to build Thai society and economics firmly.

Tool processing

Researchers manage to build tool to collect data as follow:

1. To study data and survey factors affected to participation of politicians to develop sports in Thailand by studying from ideas and theories concerned to use as

data base. By studying from documents, text, reports, researches, thesis concerned. To use as guides to build tools to research which researchers process to build tools by interviewing by researchers. By using ideas from the study as frames of the research.

2. Build interviewing form to cover the study of factors affected to participation of politicians to develop sports in Thailand by using each are as to build questions.

Tool check up

1. Consult the consultant to check, correct and improve questions to interview properly.
2. Consult the expert to check content validity to correct and improve as consulted.
3. Correct and improve and bring to consultant of the research to check again.
4. After checked, bring the interview to process collect data in the research.

Findings

The data collected from the interview with 15 politicians who were local politician's members of parliament, senators. There was analyzed using content analysis. It was found that: Factors that affected the participation of politicians in sport development of Thailand were categorized into.

1. Inner factors

When they see the values they are motivated to support and mane efforts to improve the sports in the community

1.1 Personal Interests:

The politicians, who are involved in the sport activity in Thailand have strong in tersely and passions towards the particular sport.

1.2 Community concerns: They want to see their children, youth and general people in all walks of lives in their use sports to improve their general health, to become strong, fit and firm and spend their leisure time in playing sports and at last to be far away from drudge and narcotics which will help our society free from addiction and our country can be developed increasingly .

1.3 Political in implication .

1.4 The politicians are the sports as political tool to gain their votes and succeed their position in parliaments.

2. Outer factors.

2.1 Governments policy in sport development.

2.2 Follow the strategy to develop Sports in provincial level and local policy to promote and support sports development

2.3 Political party policy.

2.4 Trend of the people in the community and to wake and drive all parts of t he country to participate in sports development more in the regions

The roles of politicians in sport development.

It was reported that politicians who were informant, took part in sport development as:

1. The committee in sports organization of the Thailand.
2. Chairman of sport organizations of the province.
3. Consultants of professional football clubs.
4. Chairman of professional football clubs.

5. Managers of professional football teams etc.

Guideline politician's participation in sports development is that most politicians have guidelines to develop sports by focusing on following the sports National Plan which are:

1. The participation in sports promoting basically and sports for public has found out that politicians participate in sports development basically and sports for public by youth and the people that would affected to development of communities, locals and societies. To participate in activities, politicians wish to make children, youth and the people turn to use their free time profitably that could reduce problems on drugs and to build better to the people. The healthy people would be able to reduce cost on treatment and to medical expenses of the country. People could live long life could help Thailand better in economics.

2. To participate in promoting and supporting sports to be competed in the international. Most politicians participate in sport development for championship by focusing in promoting and supporting tournaments and participate in competitions in all levels. Mostly with co- operation to many other firms. Such as administrators in provinces and local, tourism firms of provinces, sports centers in provinces, sports organizations, education institutions and governmental, for examples : competitions in provincial levels, such as; National Sport, Students Sports etc. To participate in such competitions; politicians wish to open good opportunities to children, youth in local levels, to show their abilities in sports and make fame to show their provinces. That could be quality in sports. That is what to be seen if those provinces have proficient or potential.

3. To participate in promoting professional sports that is most politicians participate in developing professional sports. Most politicians participate in managing professional football team of provinces by being administrators clubs such as Clubs consultant, Chairman of clubs, teams managers etc. The process in management is to participate in policy making to manage the clubs, plans on administration, personal selective to the clubs, management on command and include fund raising to process the clubs. All because most politicians focus on success of the clubs from competitions. The goals are to enter professional football league the top most of Thailand. The expected results are fame, and huge income from competitions and management etc.

In the participation of sport development, Processing in developing sports, politicians faced problems as follows

1. Rules and regulations of government do not support and facilitate the participation of politicians in all aspects.
2. Lack of good relation with the partners in the community. Therefore, the provincial collaborations can not make possible.
3. Lack of funding. The government budget on the sport development is in suffer.
4. Sport development is taken leisurely, not seriously to make the impacts.

Recommendations

1. The government should plan the policies to promote and to develop sport seriously.
2. Politicians who participate in sports development of the country must truly love sports and devote their lives for sports do not work for benefit only. They should can continuity the importance of sports to be used to develop human competence.
3. Make partners at all the levels realized importance of sport and promote the collaboration between stakeholders.
4. Open for private sectors or governments see to get involved in sport development.
5. Appoint responsible persons to take fully responsibility for sport development.
6. Promote good relationships among local partners in the community.
7. The budget should be allocated in accordance with annual plans in sport development.

Suggestions on the next research

1. Should study roles of politicians to develop sports of the county.
2. Should study guidelines on processing to work of politicians in Thailand to develop sports of the country.

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Effective Methods of Communication with Stakeholders during Times of National Crises

Nareenoot Damrongchai
Graduate School of Language and Communication,
National Institute of Development Administration

0643
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Abstract

In 2011, Thailand suffered one of its worst floods in history caused by excessive rainfall from continuous storms, monsoons, and subsequent numerous dike breaches. The prolonged and widespread floods inundated more than 20,000 sq.km of land, affecting more than 13 million people from July through December 2011. Damage and loss stand at approximately US\$ 45.7 billion. The Thai government has been criticized by both local and international societies because of its ineffective flood management and public communication. Some even argue that the damage could have been mitigated if the government had been more skilled. Based on crisis communication theory which believes that, with an effective communication plan, the damage caused by disaster can be alleviated, this research aims to study the information consumption habits of different stakeholders during the flood crisis in order to propose an effective communication plan for the government to handle more competently such situations. Focusing first on metropolitan Bangkok, this research has been informed by questionnaire contributions from Bangkok residents. The questionnaire included both closed and open-ended questions, such as the information needed during the flood situation and the residents' channels of information. The results of the study show that there is a high variation amongst the stakeholders living in the metropolitan area, each with different information needs and habits. There is no instant pattern of communication plan and the research results show that it is critically important to understand the needs of each stakeholder, in order to have an efficiency of communication during a flood crisis.

Keywords: crisis communication, flood, disaster management, Thailand

Introduction:

In Thailand, because of a combination of having an inadequate drainage system and receiving higher than average rainfall in the months of October and November 2010, the country faced a series of flash floods that hit different areas and led to disaster in 2010. Again in 2011, major flooding began as Tropical Storm Nock-ten brought heavy rain to Northern and Northeastern Thailand and flash flooding in many provinces from the end of July. Within one week, 13 had been reported dead, with ongoing flooding in the North and Northeast provinces. By the beginning of October, most dams were almost over capacity and being forced to increase their rates of discharge, potentially worsening downstream flooding (Yale/Tulane, 2011).

Due to the floods, many schools had to have prolonged holidays with no exact date to begin a new semester. Companies and even governmental offices had to announce temporary holidays while it was difficult to decide an exact schedule to return operations to normal. Agricultural and historical areas were submerged, which resulted in huge damage to the country's socio-economic systems. People all around the country started wondering if their residencies or properties were located in a flood-safe area. The country fell into chaos and panic, and rumors spread quickly. Not only did conflicts arise between those in charge of flood management, scholars and specialists went out to give their own commentary of the situation. Mainstream media in Thailand such as television and newspapers covered the floods as headline news, criticizing the performance of the government in managing the crisis, and portraying themselves as the rescuers. Different actors made contradictory statements which finally resulted in the situation lacking a unified response with information sharing not being under any control. Both Thai nationals and foreigners who live in Thailand began to doubt the government's ability to cope with the ongoing flood crisis, and the government's performance was subject to constant and harsh criticism from the media.

It is clear that the way the government communicated to the public was one of the triggers of this chaotic situation. The lack of experience, preparedness and skill in disaster and risk management, which includes communication strategy, greatly damaged the government's image (Damrongchai, 2012). The way the government communicated to stakeholders during the crisis had neither theoretically-based skill nor concrete strategy. This can be seen from various happenings such as several complaints from foreign investors about the lack of information, wrong and distorted information of the current situation, bad timing of evacuation warnings, or even the lack of ability to bring the situation under control (Damrongchai, 2012). Combined, all these form at least one of the reasons that made the public, locally and internationally, lose their credibility in the government.

To mitigate effectively possible damages caused by disaster, and to maintain the country's credibility, not only a capacity to cope with flood prevention and relief activities promptly, preparedness for an unpredictable crisis situation is crucial. Thus, to be prepared for the crisis, a well organized disaster risk reduction plan and crisis communication plan are inevitable (Zaremba, 2010). Accordingly, this survey aims to find basic information that can be useful for designing an effective flood crisis communication plan by focusing on the information consumption habits and the information needed by Thai residents in the Bangkok metropolitan during the flood crisis in 2011. The survey has been done by collecting a questionnaire from 695

contributors who live in the area with variation in age, sex, income, education, and profession. The questionnaire included both closed and open-ended questions about the information needed during the flood situation and the residents' channels of information.

Disaster Management in Thailand

In 2002, Thailand established the Department of Disaster Prevention and Mitigation (DDPM), under the Ministry of the Interior, as the principal agency for disaster management. DDPM works as a main actor to cope with disasters and also is a coordinator with other agencies such as: the Meteorological Department (TMD), Ministry of Information Technology, Royal Irrigation Department (RID), Ministry of Agriculture and Cooperatives, Department of Water Resources, Ministry of Natural Resource and Environment, and other related organizations to mitigate effectively the damages caused by disaster (Department of Disaster Prevention and Mitigation, 2011).

After the Indian tsunami struck Thailand's southern provinces in 2004, the country revealed its disaster management system to the international community. The Minister of the Interior, as the Chair of the National Civil Defense Committee and the Commander-in-Chief of the National Civil Defense, played a vital role in coordination among the various government agencies and other parties concerned with the aftermath of the disaster. A large number of meetings were convened where all parties concerned attended to discuss the issues faced during the response, rehabilitation and recovery phases. This leadership was guided by the "Civil Defense Act 1979".

However, due to its outdated features and disadvantages, the Civil Defense Act 1979 was terminated and replaced by the "Disaster Prevention and Mitigation (DPM) Act 2007" which entered into effect on 19 November 2007. Thailand's disaster management system has been based on the 2007 Act ever since (CAUCUS, 2011). Aiming to support the DPM Act, the first National Disaster Prevention and Mitigation Plan (2010-2014), where the role of the person in charge is clearly indicated, has been developed. The plan is separated into three main parts (National Disaster Prevention and Mitigation Committee, 2010). The first part of this master plan relates to the principles of disaster management which comprises nine chapters including disaster situations in Thailand, disaster management and related policy, impact reduction, preparedness arrangements, post-disaster management, roles of related organizations (clearly classified into "key operating agency", "supporting agency", and "disaster relief and rehabilitation agency") and the structure of the chain of command and coordination in order to execute the plan.

The second part focuses on disaster standard operating procedures and countermeasures. This part comprises fourteen chapters separated by type of disaster. It includes flood and landslide, tropical cyclone, fire, chemical and hazardous material, transport hazard, drought, cold spell, forest fire and haze, earthquake and building collapse, tsunami, human epidemic, plant disease and pest, animal and aquatic animal epidemics, and information technology threat.

The last part relates to national security issues focusing on security threats and countermeasure procedures. It includes five chapters on security threat, sabotage actions, mine and land mine threats, air threats and protests and riots.

There is also a National Master Plan for Disaster Prevention and Mitigation for the years 2010-2014. This is the framework and guideline which covers all sectors of the society from local to national levels, compelling each body to take into account the conducting of disaster prevention and mitigation activities not only during a disaster but also before and after disaster occurs.

Thailand after the Tsunami Crisis

After the 2004 Tsunami crisis, Thailand established a National Disaster Warning Center with the major task of detecting earthquakes and analyzing seismic data to determine the possibility of tsunami generation before the issuing of notification messages to the public, related authorities and responders responsible for the evacuation of people to safe locations. There are over 100 towers installed along the vulnerable coastline of the south, and there are many more planned for the areas prone to floods and landslides in the north. These towers can be activated remotely and will also be able to broadcast warning information in five languages, in consideration of foreign tourists. The same warning is simultaneously communicated through multiple channels such as loud speakers, SMS, radio, telephone, fax, TV, and news media to ensure redundancy, reach into remotest areas, and for clarity of the information (USAID, 2007).

The DDPM, as a main actor in disaster management, attempts to create as many volunteers, such as the “Civil Defense Volunteer” and “Mr. Warning,”¹ as possible across the country. Currently, there are over a million Civil Defense Volunteers, and almost 10,000 trained Mr. Warnings. The Prevention and Mitigation Academy (DPMA) established by the Ministry of Interior is now a principle educational institution in the disaster management field. The academy was initially aimed to train DDPM’s own officials, and since then other government and nongovernment stakeholders have become involved. For example, local administrative authorities are trained in search and rescue, and “One Tambon One Search and Rescue Teams” (OTOS)² are formed. DDPM needs to ensure that its collaboration with the various ministries continues, and that changes to policies such as incorporation of disaster risk reduction into development planning are addressed simultaneously.

Related to the readiness of other ministries, the various departments and ministries responsible are supposed to be well coordinated under the umbrella of the National Disaster Prevention and Mitigation Plan in which their roles are spelled out.

¹ DDPM has implemented a community-based volunteer training program which aims at creating a disaster warning network in the flashflood and mud slide prone villages. The trained villagers are designated as “Mr. Warning” and assigned to be the “vigilant”, “forewarned” and “coordinator” in emergency and non-emergency situations respectively.

² At the provincial and district level, implemented a training the trainers of provincial search and rescue (SAR) teams; while it is expected there will be tambon (Thailand’s administrative unit between district and village) SAR teams nationwide.

Individual agencies and ministries prepare detailed plans accordingly. The health sector preparedness for emergencies was seen in a good light because of their response to the tsunami—many of the international teams that came in found that they had no work, as all necessary steps and precautions had already been taken by the national and local health authorities. But other than mainline ministries, the incorporation of risk reduction in routine development activities on a sustained basis is still only at a beginning. On the other hand, the roles and responsibilities of the military are spelled out in the Civil Defense Plan at various levels, and it is well integrated in the response systems. All this is under the coordination of the relevant civil defense directors.

The involvement of non-governmental organizations (NGOs) and civil society in emergencies has been growing stronger since the 2004 tsunami, where they played a substantial role. NGOs are primarily involved in the response or relief operations and, to an extent, in preparedness. The Ministry of Interior has also assigned DDPM to train at least 2% of the population, or around 1.2 million volunteers. Consequently, the DDPM has to collaborate with NGOs, such as the Thai Red Cross Society, especially for Community-Based Disaster Risk Management or CBDRM activities (USAID, 2007).

Thailand after the Great Flood of 2011

2011 Flood Crisis: a Chronology

With the monsoon season well underway in 2011, rainfall began falling with regularity from May, and major flooding began as Tropical Storm Nock-ten caused heavy precipitation in Northern and Northeastern Thailand as well as flash flooding in many provinces. Within a week, 13 people had been reported dead. The upper-central provinces were also flooded as the resulting water spread down the overflowing rivers. Flooding was still ongoing in late August, as heavy rains were expected to continue longer than usual due to the effect of La Niña. The death toll rose to 37 by 22 August. By the middle of September, almost all lower central provinces were being affected by flood. Boats were employed while anchored to run against the river flow in an attempt to increase the river's discharge rate. By the beginning of October, most dams were already near capacity and being forced to increase their rates of discharge, potentially worsening downstream flooding. Flooding in Ayutthaya worsened as flood water entered the city proper, inundating the Ayutthaya Historical Park and forcing evacuations. Barriers protecting industrial estates failed, resulting in flooding of dozens of major factories and country-wide disruption of manufacturing supply chains.

Due to the continuing flood crisis, schools had to close, agricultural and historical areas were damaged, and the economies of both Thailand and other countries become significantly impacted. The news of Thailand's great flood resulted in international organizations providing help, while investors all over the world became conscious of the gravity of the situation and started to reconsider their investment in Thailand and whether to move it to another country. International visiting tourist numbers also fell. Some foreign investors began to complain that the government was neither providing necessary information, nor providing an explicit flood management strategy to help foreign companies, both of which are crucial for companies to develop prevention measures. As a result, the country lost its credibility as a reliable manufacturing base.

Rumors about the withdrawal of foreign business were widespread (news about conflicts and problems occurring during the great flood can be seen in Table 1).

Table 1 News and occurrences relating to the 2011 great flood

| News & Occurrences | Details |
|---|---|
| Villagers battle irrigation officials (September 29) | Angry villagers in Wat Sing, Chai Nat destroy sandbag barriers flooding a nearby primary school and homes. |
| False alarm spurs near panic (October 14) | Residents in northern Bangkok and in the capital's inner areas were thrown into panic yesterday after Science and Technology Minister Plodprasop Suraswadi issued a flood evacuation alert which turned out to be a false alarm. |
| Japanese firms urge improvement Faulty information a serious concern (October 14) | While foreign direct investment remains intact, Japan's Toshiba says it is critical for the government to provide more accurate flood information and implement long-term prevention measures. |
| Bottled water shortages as production slows to a drip (October 14) | Major drinking water manufacturers have temporarily stopped production as their factories are crippled by the severe floods in Nakhon Sawan, Ayutthaya and Pathum Thani. This has led to a shortage of bottled water in Bangkok and some retail chains have already put a limit on the amounts consumers can buy to prevent hoarding. |
| Navanakorn loses fight against flood? No (updated) (October 18) | After a frantic fight to reinforce them, the embankments surrounding the Navanakorn Industrial Park in Pathum Thani's Khlong Luang district leaked and broke, flooding one of Thailand's most important properties. |
| Economic cost of flooding (October 18) | 1.7% fall in growth, flood prevention investments financed with overseas borrowing, longer debt repayment periods for flood hit companies. |
| Tensions between Bangkok Governor and central gov't spill into public domain (October 21) | the federal government and local government has clashed over managing flood relief operations throughout Bangkok. |
| All-knowing Twitter for flood info (November 1) | Thai people joining Twitter in large numbers to get flood info from gov't, experts & keep in contact with family & friends. |
| Flood situation worsens as crisis becomes political (November 6) | Flood waters continue to move deeper into Bangkok as the city and national governments just can't seem to fully cooperate with each other. |
| Bangkok governor gets his pumps; flooding widens (November 11) | Relations between the BMA and the national government have improved after the governor's requests for more pumps and better drainage were granted. Meanwhile, the flood situation has worsened. |
| Residents angry over "big bag" barrier (November 13) | The big bag (sandbag) barrier in northern Bangkok has been credited with saving the inner city from flooding, but it has left residents in the outer city under water, prompting protests. |
| Sorayuth & the Great Bangkok Flood (November 18) | Since the flood last year, and more so with the scale of the disaster this year, Mr Sorayuth and Channel 3 have taken even a more aggressive role not only in reporting, interviewing and commenting on the news, but also in flood relief operations. Channel 3 has become the leading news organisation in relief |

| | |
|--|--|
| | work: receiving donations, putting together survival bags to be handed out to flood victims, searching for and rescuing stranded people and their pets, all under the non-stop rolling of the cameras churning out moving pictures as if everybody were part of a reality TV show. |
|--|--|

Sources: Bangkok Post, September-November, 2011.

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Pressure from Mass Media and Unmanageable Information

In early October 2011, when 25 provinces were already submerged, the government set up a Flood Relief Operation Centre (FROC) with the intention to work with all ministries related to immediately solve the flood problem. The Center provided flood information to the public via press conferences, phone hotlines and websites. However, the constantly changing of information provided by official government flood bulletins and television reporting made citizens become increasingly frustrated. Some even promised the public that they can manage the situation very well and asked the people not to worry about anything. Finally, everything ended with a result opposite to what the government had promised. Trust was eventually undermined with the public growing reluctant to believe the information provided by the government. In contrast, people immediately trusted information provided by independent, volunteer run organizations, mass media and independent postings on Facebook and Twitter.

The situation became even worse when rumors spread concerning the flood and the conflict among those working on the flood management. As a result, 24-hour television broadcast coverage, an uncontrollable flow of contradictory information, and the spread of rumors all resulted in increased tension among those who live in the Bangkok Metropolitan Area. Government agencies were seen to be the last actor to arrive on the scene, and the last actor the public choose to rely on (Nareenoot, 2012).

The review above highlights how it can be assumed that the Thai government came to be keenly aware of the necessity of disaster preparedness. However, the recognition and acceptance of the importance of an effective communication approach is still not forthcoming. Thus, it is necessary to pay yet more attention to a good communication strategy, and how to construct it. The following results from the Bangkok metropolitan area residents' survey might be used as an important information source for both the government and private companies to develop their flood crisis communication plans in order to ready preparation for any future unexpected flood crisis.

Survey Results

The following output can be concluded from the questionnaire responses of 695 Bangkok metropolitan area residents.

Nature of Contributors

The gender distribution between the contributors lies at 65 percent for females, while 35 percent were male. Almost 40 percent of the contributors were among the age group of 21-30 years old, followed by those aged between 31-40 years old (29 percent), and 15 percent being those from 41-50 years old. Those aged more than 51 years old shared only 8 percent while the younger generation between 11-20 years old shared only 9 percent of the total contributors.

More than half of the contributors have a bachelor's degree (66 percent) and are single (69 percent). 79 percent has no child. 20 percent of the contributors live in the

flooded area, while 31 percent live in the area surrounded by the flood, and 47 percent live in a flood-safe area.

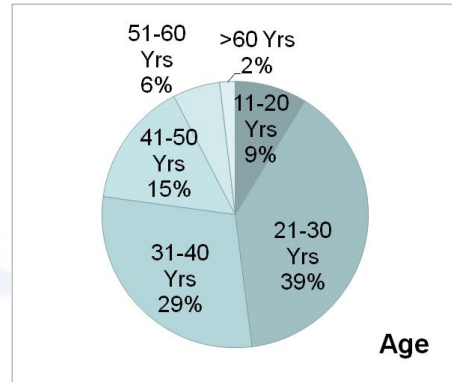
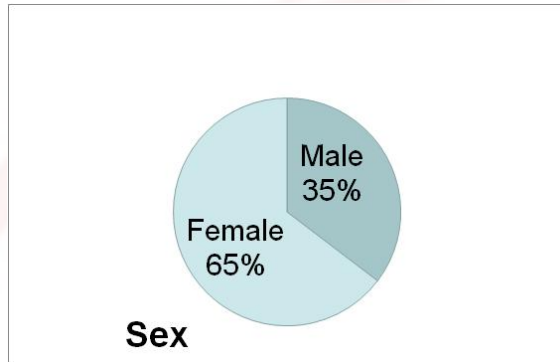


Chart 1 Percentage of contributors separated separated by sex

Chart 2 Percentage of contributors by age

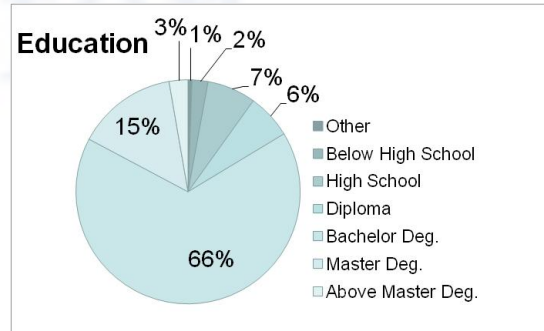
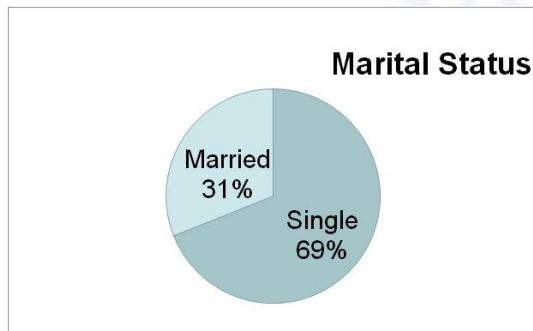


Chart 3 Percentage of contributors separated by educational background

Chart 4 Percentage of contributors separated by marital status

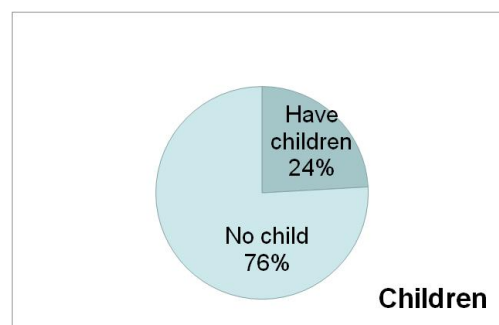
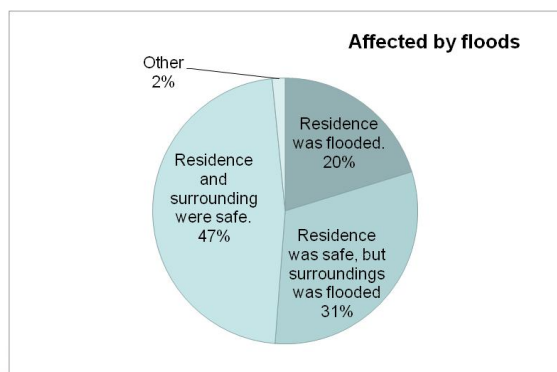


Chart 5 Percentage of contributors separated by number of children

Chart 6 Percentage of contributors effects caused by the 2011 great flood

Only 10 percent of the contributors live together in a big family with more than 6 family members. The others live alone or with a smaller family size. Almost half of the contributors have an income range of 10,000-30,000 baht per month, 23 percent earn less than 10,000 baht per month and 18 percent gain 30,000-50,000 baht per month. Although 38 percent of the contributors are in the educational field, there are variations related to the contributors' fields of occupation. For example, 17 percent are from the technology and production industry, 10 percent are from the financial/commercial field, 5 percent are from the service industries, 4 percent are from the construction and computer related fields. The nature of the organizations the contributors belong to also shows high variation, for example, Thai/foreign investment, Thai/foreign client, public/private organization, NGO, student, etc.

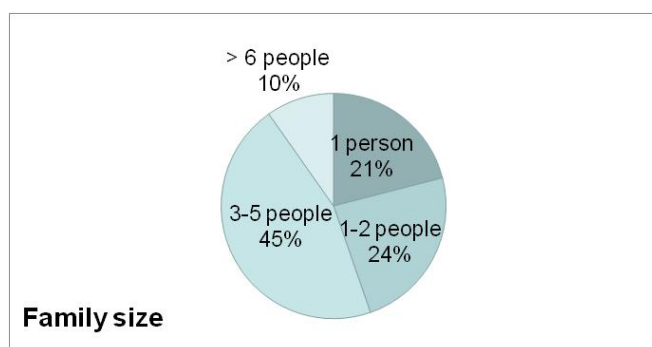


Chart 7 Percentage of contributors separated by family size.

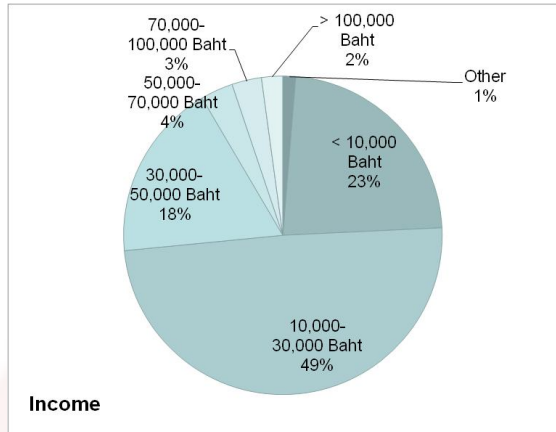


Chart 8 Percentage of contributors separated by income

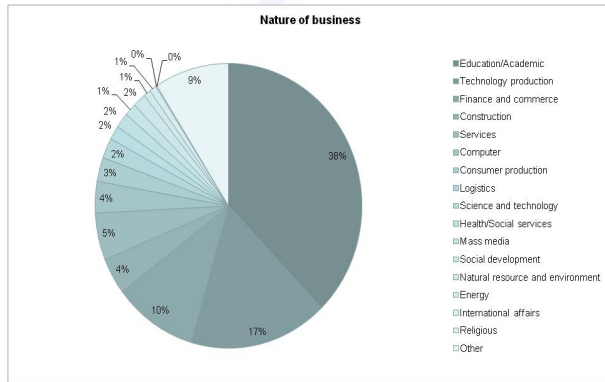


Chart 9 Percentage of contributors separated by nature of business

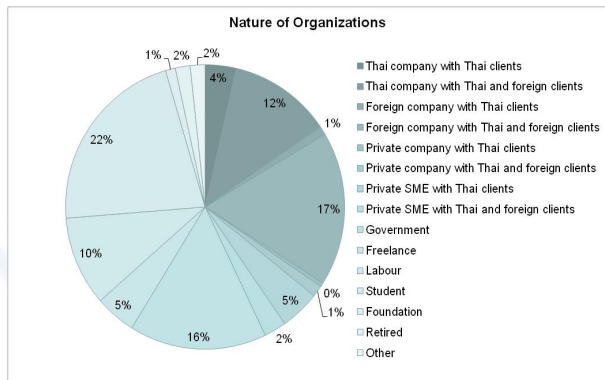


Chart 10 Percentage of contributors separated by nature of organization.

Output and Output analysis

Even though the data was intentionally gathered from contributors with variation in age, educational background, family size, marital status, income, living area, and occupational background, the results from the data do not show any clear relation between these factors and the targets' information consumption habits nor information needs.

With regard to the priority of selection of **source of information**, the responses can be ranked as follows:

1. The source that provides quick and up-to-date information (44 percent)
2. The source that provides facts and reliable information (23 percent)
3. The source that is always used in normal situations (19 percent)
4. The source that has an attractive announcer/ The source that is easy to access (3 percent each)
5. The source that provides understandable information/ The source that uses experts for commentary (2 percent each)

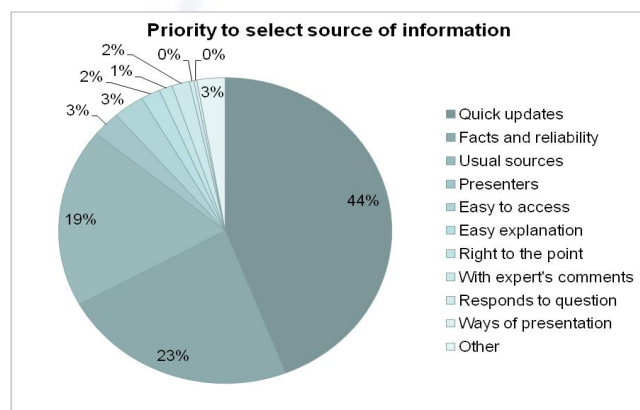


Chart 11 Percentage of contributors separated by priority for source of information selection

In relation to the question about **information needed from the government**, the contributors' answers can be ranked as follows:

1. Expected flood area and its level (28 percent)
2. Flood volume and speed (20 percent)
3. The government's concrete response (11 percent)
4. Flood survival guideline (9 percent)
5. The government's flood management policy/ Necessary traffic information (7 percent each)

Remaining issues pertinent to this section were a recovery plan from the government, shelter information, expert technical explanation, related agencies' duties, support for those with special care needs, etc.

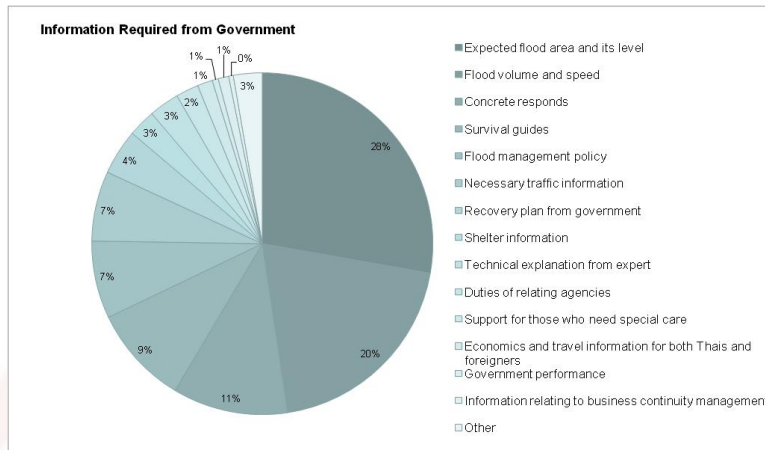


Chart 12 Percentage of contributors separated by information required from government

When focusing on the channel of information consumption, it is clear that **television news** and government held **press conferences** were the most popular channel accessed by the contributors. **Word of mouth** also shows a high effect for information distribution during a crisis; that is, the number of those who accessed information by word of mouth is two times higher than that for newspaper or social media.

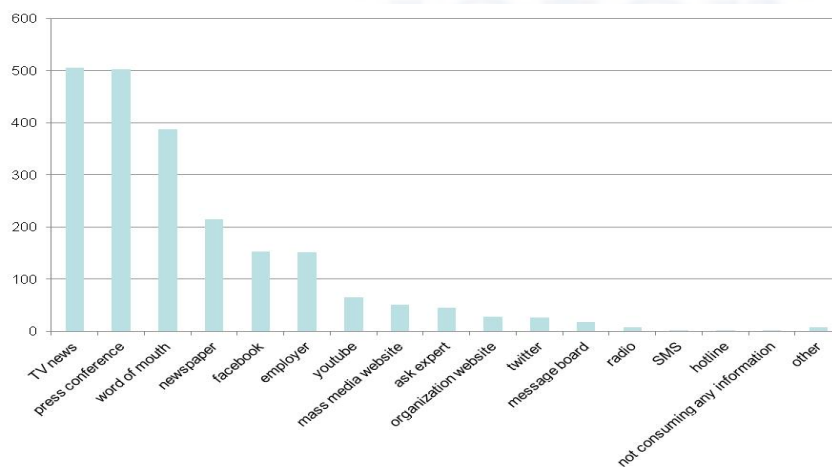


Chart 13 Number of contributors separated by information channel consumption

When considering the **number of information channels** consumed during the flood crisis, the data details striking preference patterns, ranked as follow:

1. Consumed 3 channels of information (27 percent)
2. Consumed 5 or more channels of information (22 percent)
3. Consumed 2 channels of information (20 percent)
4. Consumed only one/4 channels of information (16 percent each)

Analysis of this pattern reveals that people tend to access more than one source of information, especially during a time of crisis. However, when focusing on those who consumed only one channel of information, the data shows that among these people,

44 percent, representing almost half of the contributors, chose television as their source of information. This is followed by television press conference (30 percent) and word of mouth (13 percent).

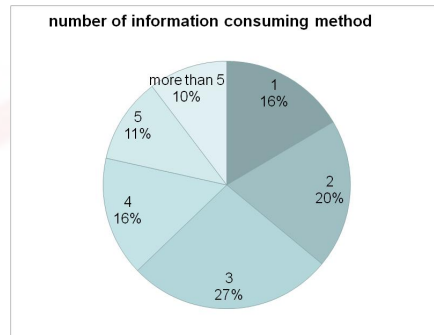


Chart 14 Number of channels of information during flood 2011 crisis

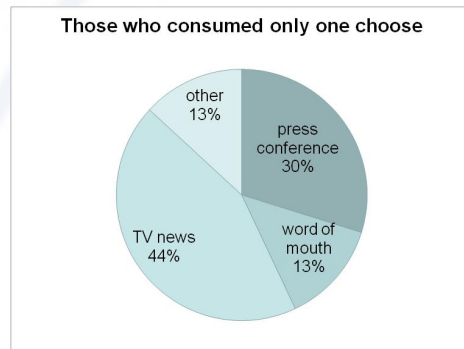


Chart 15 Channel consumed by those who accessed one channel during 2011 flood crisis

In reference to the qualitative answers collected from the questionnaire's open-ended questions, it is found that what people expected most from information provided by the government is honesty and only the truth. Following this is the high requirement that the information received be up-to-date, easy to understand, containing clear and concrete details, includes details concerning the organization in charge, information without any political intervention, and the information that is accurate.

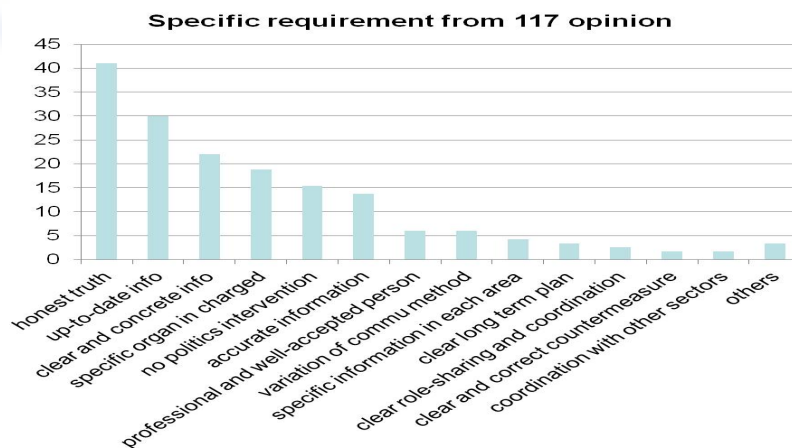


Chart 16 Number of contributors separated by channel of information consumption

Although it is described above that the data collected in this survey did not show any clear relation between the various factors of the targets' information consumption habits nor information needs, there are several interesting observations to be noted. First is the that educational background appears to be related, in some manner, to **channels of information taken, type of television channel chosen**, as well as **level of internet usage**.

With regard to **channels of information taken**, the data shows that those who have an educational background lower than high school or college/vocational school appear to have a tendency to take information only from the government's press conferences, word of mouth, and television news programs. In contrast, those respondents currently studying in high school and those with an educational background higher than bachelor degree, tend to have more variation in chosen source (channel) of information (Table 2).

| Group | Information sources |
|---|---|
| Lower than high school or college/vocational school | Government's press conference, word of mouth, and TV news program |
| High school or above | more variation in choice |

Table 2 Source of information separated by educational background

In relation to the **type of television channel chosen**, as outlined in Chart 17, the data shows that those who have a higher educational background tend to access the "Thai PBS" channel³, which is gaining in popularity among the Thais middle-class, more than those with a lower educational background. Thus, it can be assumed that the consumption of "Thai PBS" tends to become higher depending on the consumer educational background.

³ Thai PBS is a public television station broadcasting on a frequency formerly held by the privately run channel, iTV. The Thai PBS broadcasting program consists of documentaries and children's programs. Broadcast hours were originally from 4:30 p.m. to 11:00 p.m. daily, later 11:30 a.m. to 11:00 p.m., and later 5:00 a.m. to midnight with five to six hours of news programs.

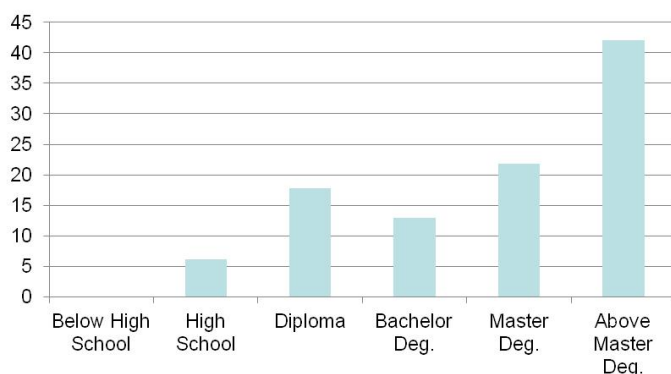


Chart 17 Choice of Thai PBS as a source of information separated by educational background

When focusing on the **level of internet usage**, the data also shows that educational background, again, is one of the factors that influences the habit, as shown in Table 3.

| Group | Use internet as information source |
|-------------------------------------|------------------------------------|
| College/vocational school graduated | 2 from 45 people (4.4%) |
| High school graduated | 11 from 49 people (22.4%) |
| Bachelor degree graduated | 167 from 494 people (33.8%) |

Table 3 Internet usage as source of information during 2011 flood crisis, separated by educational background

Conclusion and Recommendations

According to data discussed, it is necessary for the government to spend **more effort in the presentation of its television press conferences and television news broadcasts** since the majority of people chose these media even during times of crises and these are the only channels that can communicate necessary information to different stakeholders in the country. In order to do this effectively, the government needs to formulate a crisis communication plan based on the data above and stick closely to the plan during a time of crisis. However, new media such as internet website or social media are also to be highlighted especially when their target group is those who have higher education or are foreigners. Moreover, from all the data gathered in this survey, it can be concluded that:

- ✓ There is high variation amongst the stakeholders living in the metropolitan area, each with different information needs and habits.
- ✓ The Internet is not the best channel to communicate to the public as a whole. TV (a specific channel) remains the best.

- ✓ There is no instant communication plan pattern. It is critically important to understand the needs of each stakeholder and formulate a prudent response, in order to have efficient communication during a flood crisis.

A synthesis of these facts and conclusions forms the recommendation that, in order to achieve effective communication during a time of crisis, the government should:

- ✓ Concentrate resources into the execution of a more effective television press conference since most people choose to consume information from this channel.
- ✓ Provide only the truth, provide it correctly and promptly. In order to do this efficiently, it is necessary to set up a specific organization to be responsible for information distribution
- ✓ Explore the possibilities of coordination with other media sectors such as popular private broadcast organizations (including this in the government's crisis communication plan) to gain more audience and reliability.
- ✓ Since the data shows that the nature of people who consume each TV channel is different, the government should take this important information into consideration in order to transfer specific messages to the public when formulating a crisis communication plan.

However, this survey has focused only on Thai residents who live in the Bangkok metropolitan area and tend to be a middle class population concentration. The implementation of a similar survey concentrating on different stakeholders, such as those who live outside the Bangkok metropolitan area, foreign investors, tourists, persons with disability or those with special care needs, etc. is considered necessary and strongly recommended.

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At the Grassroots Level of Diplomacy: A Research on the Perception of Indonesian Migrant Workers on Indonesian Diplomatic Corps

Dian Mutmainah

Universitas Brawijaya, Indonesia

0656

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Abstract

This research addressed the perception of Indonesian migrant workers on Indonesian diplomatic corps. This study also investigates the correlation between the proximity of the workers with the diplomatic corps and the impact on their perception on Indonesian diplomatic corps. These are important issues because Indonesian migrant workers have been a challenge for Indonesian diplomacy lately. Using Principal-Agent theory, this research was conducted in Malang areas, East Java Province, Indonesia, which is one of the main supplier provinces of Indonesian migrant workers. This research was combining quantitative and qualitative methods. The quantitative method is used to describe the trends of the perception while the qualitative method is used to explain the relations between “the proximity between the workers and the diplomats” and “the perception of the workers on the diplomatic corps.” This research shows the proximity between the workers and the diplomatic officers influences the perception of the workers. The more actively involved a workers is, the more positive the perception they hold on the diplomatic corps. The less involvement, and no interaction at all, lead to stronger negative perception of the workers on the diplomatic corps. Thus, it is important to notice that there is a need for the diplomatic corps to build the closer proximity to the workers in order to improve their image since even those who never directly interact with the diplomatic corps have a tendency to build their negative perception through prejudice and words of mouth reflecting the failures of Indonesian diplomatic corps.

Keywords: diplomacy, perception, migrant workers.

Introduction

Diplomacy is a domain of state activities that only includes certain actors who really have the authority to determine the state behavior at the international level. Therefore, it is uncommon to discuss about the role of layman in such an exclusive enterprise. But, that is a traditional view. Nowadays, diplomacy is no longer sufficient to be conducted only by official diplomats. The shifting of international focus from “high politics issues” to “low politics issues” requires the involvements of people from various backgrounds to support official diplomats dealing with various issues.

Indonesian migrant workers (*Tenaga Kerja Indonesia* = TKI) have been a challenge for Indonesian diplomacy because it has caused some diplomatic tensions between Indonesia and the host countries to where the workers migrate. There are various issues related to TKI that brought the diplomatic relations into crisis. These issues are mostly related to the mistreatment of the employer on TKI, such as: violation on the contract, unpaid salary, physical violence, and sexual harassment (Kompas 2010 in Irianto). In some cases, the mistreatment (especially physical violence and sexual harassment) leads to a tragedy of murder that finally put a worker into serious legal charges.

This problem complicates the responsibilities of the Indonesian diplomatic corps since the solution does not only require diplomatic rules to adopt, but also how to deal directly with the workers (TKI) who are mostly do not have sufficient knowledge about how to work as expat. Most of TKI work abroad through a recruitment system which also organizes all the administrative affairs for them, including passport, visa, and the contract itself. And the TKI mostly understands neither their rights nor their responsibility to be expat (Irianto 2011: 57-9).

Therefore, the diplomatic corps not only responsible to the workers’ legal position but also they have to deal with citizen who has lack of understanding of their position as a non-citizen worker abroad. TKI who works in domestic sectors and other low-wages occupancies are those in a situation of needing a job that cannot sufficiently be provided by their home country. So, the diplomats are not only facing the diplomatic issue but also sociological issue that basically not their main responsibility. It is the responsibility of the state as a whole. In this point the meeting of the diplomat with the citizen (TKI) is in a situation that is not only critical, but also ‘fragile’ since the diplomatic corps might lack of both understanding and authority to handle the issue alone. At the same time, the diplomat is seen as the main party who has the responsibility to handle any situation related to the protection of the citizen abroad.

The main point of the explanation above is that the diplomatic corps has been burdened with responsibilities that should not be their own. At the same time, for the workers (TKI) the diplomatic corps is the party who should protect them abroad especially when they are in legal situation. Handling citizen’s problems in host country is basically a usual event for the diplomatic officers. What unusual in this case is that the number of the case is plenty.

Table. 1 Distribution of TKI and Their Cases (2008)

| Country | Number of TKI | Number of Cases |
|-------------------|---------------|-----------------|
| Saudi Arabia | 960.000 | 22.035 |
| Taiwan | 130.000 | 4.497 |
| Uni Arab Emirates | 75.000 | 3.866 |
| Singapore | 100.000 | 2.937 |
| Malaysia | 2.000.000 | 2.476 |
| Hongkong | 120.000 | 2.245 |
| Qatar | 25.000 | 1.516 |
| Oman | 12.000 | 1.146 |
| Bahrain | 16.000 | 373 |
| Suriah | 80.000 | 161 |
| Brunei Darussalam | 33.000 | 84 |
| South Korea | 33.000 | 10 |

Total number of the Case: 45.626

Total number of TKI: 4,3 million

Notes: excludes illegal (without documents) migrant workers

Source: BNP2TKI 2008 in Sulistyowati Irianto 2011: 15-6

The massive number of case related to TKI has created a situation where the diplomatic corps lack of resources to handle every case appropriately. The treatment for TKI who facing working cases requires the diplomatic corps to provide extra services such as shelter (since they may lost their documents that make their being illegal), legal advocacy, psychological counseling, and so on. These services cannot be provided by the diplomatic representation abroad without domestic support since those are not seemingly as a standard services in a diplomatic representation. These services have been provided by the representation where such cases are common (like in Middle East countries) as a 'spontaneous' response to the cases. However, the absence of state's systemic policy to handle such cases leaves the diplomatic corps at the very front of the display of Indonesian unconvincing protection on TKI. As a consequence, while needing the understanding of TKI to build good relationship to face difficult situation, the diplomatic corps cannot set aside their being as part of the administration.

This research addressed the perception of Indonesian migrant workers on Indonesian diplomatic corps. This study also investigates the correlation between the proximity of the workers with the diplomatic corps and the impact on their perception on the performance of the Indonesian diplomatic corps. These are important issues because Indonesian migrant workers have been a challenge for Indonesian diplomacy lately as explained above.

Literature Review

The Formation of Perception

How people perceive the world will determine their behavior and stance upon an issue. The formation of perception is involving complex mechanisms. However, it can be

simplify into two main views: direct (bottom-up) and indirect (top-down) theory. James Gibson's direct theory argues that perception is formed through ecological experience where information from the environment supplies (sufficient) materials to form certain perception (Albon, nd). Thus, the perception might change when the surrounding changes and this lead to adaptation to social behavior (Arthur and Baron, 1983: 215). Meanwhile, Richard Gregory's indirect theory proposes that perception is actively constructed through stored information and knowledge that has already stored in the brain (Albon, nd). Therefore, information from the environment might not dominantly influential in the formation of perception. They will be interpreted according to the stored information and knowledge in the brain. Thus, perception is not something easily change when the surrounding changes.

To sum up, perception can be formed through basic perception (character) that has built during someone's life or through information from the environment. This research will prove which factor is more influential in forming TKI's perception on Indonesian diplomatic corps. The TKI's perception can be a parameter of success for the corps. In addition to that, the relations between the two parties are important since they are met by the inadequacy of the systemic TKI management.

(P-A Theory)

According to a theory of diplomacy the position of the diplomat and TKI can be understood in Principal-Agent relations (P-A theory). P-A theory states that in the context of representation, diplomat as agent acts based on a mandate determined by the principal (Jonsson and Hall 2008: 103). In a narrow view, we can perceive the administration as the principal. But in a wider and a more comprehensive view, the citizen is the ultimate principal since they are who basically represented by the legislative that in turn produced regulation implemented by the executive (the administration). Indeed, this confirms that the role of citizen in imposing a mandate to the agent depend on the form of the political system. The more the system open to public participation, the better the aspiration of the public be reflected in a mandate to the agent.

Indonesian political system, or decision-making procedure in practice, has put the diplomatic corps and the citizen at the widest gap. The workers have been socially weak since the existence is a result of the incapability of their country to provide sufficient number of job. Therefore, TKI is also alienated from the possibility to generate a mandate since they are technically do not have political access to do so. Meanwhile, the diplomats alienated from domestic decision-making process on policies related to migrant workers. Thus, in this context, the citizen do not involve in generating the mandate while the diplomat has been normatively asked to fulfill the (citizen's) mandate to protect them. This means while the workers and the diplomat must meet in person, they are alienated to one another in the decision making process. Consequently, this opens a potential space for "misunderstanding." Indeed, understanding between the two is crucial in handling the case in the field while the national policy is not good enough in protecting the workers. Thus, it is important to investigate the relations between the two at the individual level.

Methodology

This research was combining quantitative and qualitative methods. The quantitative method is used to describe the trends of the perception while the qualitative method is used to explain the relations between “the proximity between the workers and the diplomats” and “the perception of the workers on the diplomatic corps.” The proximity is defined here as the existence of direct and/or direct interaction between the workers and the diplomats (Bryman, 2004: 19-21).

There were two stages of data collection procedure:

1. Survey on the perception of TKI on Indonesian diplomats; and the correlation between the interactions and the trend of perceptions.
2. In depth interviews on the pattern of interactions between TKI and Indonesian diplomats.

Respondents were selected based on their experiences and no limitations on the duration of the work (active and non-active workers). Respondents are TKI who experienced as domestic workers. Direct or indirect interactions were both covered considering the possibility that it could be explanative to the formation of perception. Respondents are limited to TKI who did not experience any working problem (having no case). They are considered as the most possible respondents who convey positive perception on Indonesian diplomatic corps considering the fact that there are actual weaknesses in Indonesian protection policy on TKI.

Research was conducted in Malang area (covering Malang Regency and Municipality), East Java Province, Indonesia. Malang is one of the central locations for migrant recruitment and East Java is one of the main TKI supplier provinces. The research was covering 19 spots located in Malang area. However, this does not mean that all respondents are Malang residences. They come from Malang and other areas in Java (mostly East Java). Researches met them in various location in Malang: their house, their working place (the current employer's house) to meet those who are working as a maid in Malang, at the Agency to meet those who are trying to get another job abroad, at the immigration office to meet those who are preparing documents for another departure.

Findings and Discussions

The survey shows that from 23 respondents, most respondents (52%) hold positive image toward Indonesian diplomats. This is the normal response as predicted. However, it is interesting that 48 % did not hold such perception. Please bear in mind that the respondents are selected based on the absence of case, which means these respondents are assumed as those who own the biggest possibilities to hold positive perception since they are having no issue during their stay abroad. The latest group is divided into two categories: those who hold negative and mixed perception. There are six (6) respondents (26%) are holding negative perception and five (5) respondents (22%) are having mixed perception. The latest ones are those who have both positive and negative perception towards Indonesian diplomatic corps (Table 2).

Table. 2 TKI’s Perception on Indonesian Diplomats

| Image | Numbers | Percentage |
|-----------------|----------------|-------------------|
| Positive | 12 | 52 % |
| Negative | 6 | 26 % |
| Mixed | 5 | 22 % |
| Total | 23 | 100 % |

The data above shows that the absence of negative experiences during the work abroad does not guarantee that a TKI will hold positive perception on Indonesian diplomatic corps. In the context of diplomacy, this could be counterproductive for Indonesian diplomatic corps because even this ‘unharmed’ citizen could potentially damage their reputation both domestic and abroad. These workers are potential communicator in helping the diplomat building a network with the workers abroad to maintain the relations with them, especially when they work in a host country where violence is part of its culture. What is more important than that is how the diplomat can truly see the position of TKI as the true principal for the diplomat. If that can be done, the diplomat could also see that there is a gap between what TKI want and what is the actual mandate instructed by Indonesian government. Indeed, if such view can be hold by the personnel of Indonesian diplomatic corps, they could work side by side with the workers in urging changes at the national level in orders to improve protections for TKI abroad.

Looking at the importance for TKI and the diplomats to work together, at least in maintaining their own relationship, this research also assessed the correlation between workers’ perception and the form of interactions. Direct interaction is indicating close proximity while indirect contact is indicating distance (Figure 1).

Figure 1. TKI’s Perception and Forms of Contacts

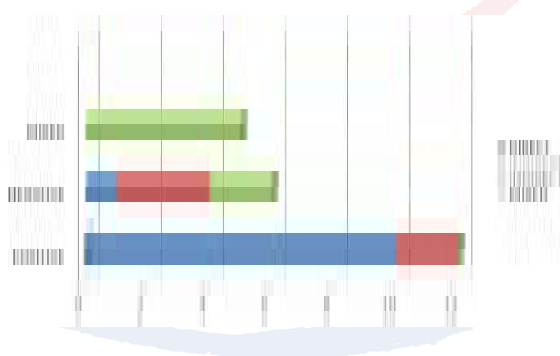


Figure 1 shows different pattern of interactions that form each trend of perceptions.

Positive perception is mostly conveyed by respondents who had experienced direct interaction with Indonesian diplomatic corps (10 respondents). Respondents was having direct interactions by experiencing administrative and consular affairs procedures regarding documents like passport or visa, periodical checking by the

diplomatic corps, and/or joining the Embassy's social events and gathering (celebration of Indonesian independence day, Holy month pray, Muslim Holiday). Only two (2) respondents held positive perception without experiencing any direct interactions with the corps. However, those two have misunderstood the function of diplomatic representation. They thought that someone needed to come to the embassy only when they have serious problem generating legal issue (lawsuit). Since they always had their documents settled by the agency or the employer, these workers was kept away from the possibility to have direct contact with the diplomat.

Meanwhile, **negative perception** on TKI was conveyed by respondents from all pattern of interactions: one (1) respondents who experienced direct interactions, three (3) respondents who had indirect contacts, and two (2) respondents who encountered both interactions with the corps. A respondent who experienced direct interactions held negative perception because she felt that the officer at the Embassy had made the administrative procedure difficult. She blamed the officer as unhelpful in assisting her completing the contract while she could not show the working permit as one of the prerequisites. She also disliked when the officer asked her to fulfill the insurance form since she had already had insurance. So, the respondent was basically having no issue regarding the work and the employer. She held negative perception because she did not trust the officer about what should and should not do. Meanwhile, those who never experienced direct interactions held negative perception because they got information from various sources (other migrant workers, the employer, media) that Indonesian diplomatic corps has shown poor performance in protecting TKI abroad. These two communication mechanisms, words of mouth and media, have unpredictable impact on shaping public opinion since the spread is massive and part of the social process. That revealed why even those who never directly interact with the corps could already hold a prejudice to Indonesian diplomatic corps.

Finally, **mixed perception** is held by all respondents (5) that experienced both direct and indirect interactions with Indonesian diplomatic corps. The interesting point here is that positive perception is built along the lines of the respondents' experiences in dealing with the administrative procedures at the embassy and also the social events especially established by the embassy for the workers. At the same time, negative perception had been formed through the words of mouth among the workers, information from the employer, and off course, the role of the media about the mistreatments of TKI. This confirms the previous findings that direct interactions creates a bigger possibility in forming positive perception. In addition to that, the absence of contact between the workers and the diplomat open a bigger possibility for negative information either through the words of mouth or media to form the workers' perception over the diplomats.

Besides those findings, this research also displayed TKI's behavior as "inferior principals." They had a little comprehension about the duty or functions of the diplomatic representation. Many respondents could not describe the basic functions of a diplomatic representation. Some of them even did not know that such institution existed. This proved that TKI had been alienated from their own protection system. It was understandable then why most of them tend to see the diplomatic representation as a symbol of problem rather than protection. Indeed, that was

counterproductive for the representations since they had developed the basic functions with certain protection functions for TKI (Kemenlu.go.id).

Another problem was TKI's tendency to see Indonesian diplomats as elite rather than as their agent. This is a classic issue in the discussion of diplomats-citizen relations. However, TKI has created certain situation that requires the diplomatic personnel to be more sensible to the workers in person. This is what has been trying to be underlined in this research. Some respondents expressed their reluctance to meet the diplomats because they felt unwelcomed. One respondent even said that she would never come to the diplomatic office because she was afraid of the diplomats. She got unpleasant treatment when she asked for information the first time she arrived in Hongkong. Instead of explaining, the officer interrogated her.

Observing the host country of origin, it can be concluded that there is correlation between the host country and the perception. All TKI conveyed positive perceptions were those who had experienced working in Hongkong and Taiwan. Both were TKI's favorite working destination because they were quite safe and provide quite high salary. Meanwhile, most of those who conveyed negative perception were those who had experienced working Saudi Arabia and Malaysia. These were two host countries with the highest number of violation over TKI. Finally, those who had mixed perception were mostly those experienced job placements in Hongkong and Taiwan. Only one person was placed in Saudi Arabia. We can see that those who had good experiences had shown empathy to those who were unlucky.

Indeed, this again confirmed that it is important for Indonesian diplomatic corps to build good communication with their constituent (TKI). The ultimate goal is not to negate the lack of service they can provide, but to reduce misunderstanding while improving the service. The power of media and words of mouth are at great strength that neither the diplomat nor the public can control (Pigman 2010: 3). However, the closer proximity between the diplomat and TKI will generate TKI's positive perception on the diplomatic corps which in turn could be used to push systemic improvement on migrant workers protections.

Conclusion

There is a correlation between the proximity between TKI and Indonesian diplomat and the TKI's perception on the diplomatic corps as a whole. Direct interactions with TKI open greater possibilities to build TKI's positive perception on Indonesian diplomat. The less involvement, and no interaction at all, lead to stronger negative perception of the workers on the diplomatic corps. Thus, it is important to notice that there is a need for the diplomatic corps to build the closer proximity to the workers in order to improve their image since even those who never directly interact with the diplomatic corps have a tendency to build their negative perception through prejudice and *words of mouth* reflecting the failures of Indonesian diplomatic corps.

TKI as an "inferior principal" is lack of capabilities to give a mandate to the diplomatic corps as their agent since they are marginalized in national political system. Therefore, the diplomats as an agent need to have better psychological or social

understanding in handling the migrant workers since their existence is related to special situations that is basically cannot be managed by the diplomatic corps alone. Otherwise, Indonesian diplomacy related to TKI must involved more actors who can handle the issue in a more professional way to make it less political for the country.

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*Philanthropy, Transparency and Mass Media Indonesia;
Sustainable Systems of Governance In Media*

Lestari Nurhajati
Faculty of Social & Political Science
University Al Azhar Indonesia

0503

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Abstract

Aceh Tsunami in Indonesia on December 26, 2004, is one point behind the changing functions of the media in Indonesia. At that time the media in Indonesia is not only a bearer of news of the disaster, but also the organizations collecting and channeling public funds. One of the media that Metro TV Through "Indonesia Crying" in addition to receiving relief supplies, this television also receive donations. In less than a week, the funds collected around USD \$ 4,123,712.

The media itself has a function as a watch dog, to supervise the various things in the public interest. Similarly, monitoring of the aid (philanthropy) to perform its functions in accordance with the rules should be. Media as philanthropic also required to provide accountability to the public. The problem is, if the media will be willing and able to run it?

All philanthropic organizations should be monitored and transparent. It also includes the media who collecting and channeling funds. The media also have the courage to self-criticism on themselves. One of the simplest examples is the difficulty of separating the funds which collecting from audience with the company's CSR fund.

As an initial study, in general it can be seen that it is not easy for the media to actually perform the function of transparency when it becomes the collector and manager of the fund. The principle of independent media and then are violated, because the media tend to defend the interests of their own company.

Keywords: Philanthropy, Transparency, Mass Media Indonesia

Background

The catastrophic event of Tsunami that took place in Aceh on 26 December 2004, was one of the turning point of the main functions of media in Indonesia. At that time, mass media in Indonesia was not only the reporters of disasters, but it became institutions that collect and distribute relief funds and donations from public. Almost every citizen in Indonesia received continuous sympathetic reporting on the conditions of tsunami victims and the following earthquake that happened in Nias. This condition touched hearts of many people to provide donations to the victims. Metro TV was one of the media that took advantage of the situation by reporting that Metro TV collect relief funds and donations from public through the “*Indonesia Menangis*” (Indonesia is crying) program. It was estimated that within a week, Metro TV collected approximately Rp. 40 Billion (Bintang, 2010).

The success of Metro TV as a fund rising engine was followed by other media, including TV One. During Mountain Merapi volcanic eruption in Jogja (2010), TV One collected donations in an approximate amount of Rp. 50 billion through the “*Satu Untuk Negeri*” (one for the nation) program, just within three weeks. Prior to that, during the earthquake disaster in Padang (2009), TV One also collected donations in the approximate amount of Rp. 20 million. All of these donations pour into the company’s bank account, not separated. So, how about the accountability on the use of those public funds? There has never been any clarity or transparency of any data related to this. Whereas, the moral consequences of those accountability reports are with the donation’s funds managers, at least it has to be audited by an independent public accountant, and the results must be published through printed national media. Considering that the donation funds were collected by various members of public from different parts of Indonesia.

The problem that arised when mass media also became collectors of public’s donation funds, is how about media’s independency? How about media’s transparency when themselves are also involved as philanthropy institutions? And how about accountability and good governance that is being implemented by the media?

The ‘Helping Attitude’ Culture in Indonesia

The term philanthropy itself can be defined as ***voluntary action (giving and serving) for the public good*** (Payton and Moody, 2008). This condition applies in various parts of the world. Groups who have more wealth and fortune will provide support to other people in need who are less fortunate. Although in some cases, material goods, is not the only thing that is recorded as philanthropic activities, donation in forms of energy and thoughts from other people is also recorded as part of the philanthropy project.

Unlike charity, philanthropy relies more on advocacy and empowerment with long term impact. Charity itself relies on the service aspect (Latief, 2012). This later developed in the modern world. Providing support and compensation for long term commitment, particularly for the education and health sectors became priority for most philanthropic institutions nowadays. But as a matter of fact, the long history of philanthropic activities that cannot be separated from the history of charity, became a tradition in various nations and customs, and people from all around the world. Including Indonesia.

The Indonesian people itself are used to the ‘helping each other’ culture that is called “*gotong royong*” (meaning: mutual cooperation). Where people are giving and receiving something from one another, where they will later on return the favor. “What goes around comes around” is a picture on how Indonesian thinks about its community. This situations commonly happen in some areas when it comes to building new houses, helping in funeral process, helping in wedding ceremonies, giving presents, and etc. (Forshee, 2006). This later become habitual and daily practices that is done by individuals or through institutions. In urban areas of Indonesia, there is also the *Paketan* (potluck) culture, which is a tradition during family gatherings of neighbors or family members, where they do not collect cash, but they bring processed food or kettle that they will later on enjoy together (Midgley, 2011).

Various community organizations in Indonesia are also doing these philanthropic activities, both in faith based organizations and in non-faith based organizations. This condition is also reflected in companies established in Indonesia. Prior to the legitimation of the Corporate Social Responsibility bill No. 40 in 2007 by the Government that order companies to take responsibility of their social environment, the average companies in Indonesia have carried out philanthropic programs.

This does not occur naturally for the mass media companies in Indonesia. There is no doubt that the mass media in Indonesia has done spontaneous philanthropic activities particularly when it relates to natural disasters. Their efforts is to provide open and voluntary relief, but they often failed to realise that it could affect the independency of media. This is a situation that rarely happen for mass media that circulate in other countries. It is recorded that mass media such as Aljazeera, CNN, Reuters and others, reports on natural disaster quiet intensely, but they never turned into fundraising institutions. Those media only provide information to public on where they can place their donation for relief, primarily through institutions that are already providing relief assistance when disasters happen.

Media must be Independent

The mass media cannot be separated from the newsreporters aspects which are informative, truthful, accurate, objective, and has a balance compositions or proportional. From this angle it is clear that media are required to have an independent attitude. From the public’s wish that media must be independent, objective, and impartial; the situation where media became fund rising agencies is often questionable. According to Matheson, one of the function of the media to remain independent is its watchdog function. That is to supervise and to run investigatory reports to oversee government’s and law enforcements’ responsibility as the key pillars to a nation (Allan, 2010).

Logically, the function of media as a “watchdog” can also be highlighted. So far, media are in favor to public when it comes to events that provides disaster relief. The media also has the ability to criticise, how much money is being raised, and how, when, and where it has been distributed. For example, when the Tsunami occurred in Aceh (2004), hundreds of organizations, both from Indonesia and outside Indonesia deployed their forces to Aceh. The amount of donations they collected was more than US\$ 493 million, and media in Indonesia was very diligent when it comes to monitoring of those funds.

At that time, almost everyday, media in Indonesia reports on the misuse of those funds. For example, there are organizations working in health sectors who provide assistance in housing infrastructures instead of providing assistance in accordance to their health expertise, then, there is an international organization working in the field of child welfare that forced themselves to construct school buildings, and so forth; and these were critically highlighted by media. Because in practice, those organizations failed to perform in a professional and proportional manners when providing relief assistance. But, how about

control of funds collected by the media themselves? Who is monitoring them? Especially at that time, there are a lot of media that also turned into relief fund managers. If the presence of media that turned into a fund raising machine was not considered as a problem, then it is very critical to define a clear rules for the media.

Meanwhile, observing situations in the United States, it is clear that the Federal Communications Commission (FCC), is responsible to issue regulations and articles that relates to programs that are not eligible to be displayed, one of them is when dealing with fund raising efforts (or obvious solicitation of funds) (Medoff, 2011). A rule that provides clear boundaries to maintain media's independence.

Transparent and Non CSR

The typical characteristics of the Indonesian people with the spirit of *gotong-royong* inevitably influence the mass media in Indonesia. Condition where media is influenced by the public is very likely to occur, therefore the function of social media becomes the reflection of the society (Straubhaar, 2012). Especially when there is a claim that the media, particularly television in Indonesia, is an activator of the most massive philanthropic disaster over the past 15 years (Idhom, 2013). Therefore, it is necessary to emphasize the importance of security by all parties, including media themselves, to ensure that their corridors of acts are in accordance to public's desire.

All philanthropic organizations should be supervised and transparent, all Social Foundations must be open to the public. Including the media. Media can no longer act solely based on guardians of public interest role, with the existance of monitoring function in other parties, they also have to take brave actions, that is to self-criticize themselves. Media must be vigilant not to get caught in seeing shortcomings and mistakes of other media, regardless of their own, "able to see ants across the ocean, and failed to see elephants in front of our own eyes".

The existance of a mass media code of ethics that was produced by the Indonesian Press Council was an effort to ensure that media who act as fundraisers, must be transparent. A compromising steps to allow media to collect public funds for social activiteis is no longer feasible. Especially in ensuring that those funds will reach the rights beneficiaries. To separate company bank accounts with public donation bank account (Article 2) is the right initial step. Also when providing the donation, it is critical to mention that the donation is from the pubic, not from the media company.

This must be firmly asusured because it is very inappropriate to use public funds for company's CSR Corporate Social Responsibility. It was done by ANTV *Peduli Untuk Negeri* (care for nation), where in their 2011 annual report stated that the public donation became ANTV CSR fund. The same thing happened to Femina Group that placed YDBA *Sekar Melati* as part of their CSR program, where the fund is collected from public. In fact, the concept of CSR is to allocate company's profit for social activities within the community. On the other hand, Metro TV that has established Yayasan Sukma to manage the donation funds from the *Indonesia Menangis* program is still in the grey area, where they already have an independent organization, a website to report on the use of funds, but the member of the management team is not transparently published.

The Use of Media's Name

The main concern of many parties is when the media turned into the philanthropic institutions is the use of their own name when they provide assistance to community. For example, *Pundi Amal* SCTV, *Indosiar Peduli*, *TVOne Satu untuk Negeri*, *ANTV Peduli Untuk Negeri*, *Dompot Kemanusiaan Indonesia Menangis* Metro TV, and others, shows the close relation between the media's name and the philanthropic activities, and what is often forgotten is that the fund is from the media, whilst in fact, the real contributor is the public, not the media.

It also shows that the use of the media's name has become the major requirements of the media in becoming a fund rising institution. Not merely for humanitarian reasons because, again, there is interest to "emphasize" the name of the media in these activities. This situation seems to be inevitable for any media company that turned into public fund rising institution.

If this situation is already occurred, then what needs to be further assessed is whether the media actually remember to describe the source of the donation (which is public) when they handover the donation to beneficiaries. The awareness must come from the media itself. Although they often claim the airtime they used as a media to collect those funds, therefore it can be claimed as the donation by the media itself (the value can be calculated), and the generosity of the media supposed to appear during this process.

Accountability of Media

Accountability is often associated with a variety of terms and phrases such as openness, transparency, accessibility, and reconnecting with the public. From this concept, media is required to have the ability to be opened, transparent, accessible to anyone, and is inseparably connected with the public's interests. Then in general, media accountability relates to how the media is held accountable to the public.

If the media has turned into a philanthropic institutions, then the media must be able to be held accountable to the public. Like a saying, mass media that turn into fund collectors and relief service providers, they have gone beyond their line of authority as a guard/watchdog for public interest, then it is inevitable that they need to build consciousness that they must be held accountable by displaying their philanthropic function openly to the public.

Later on some media indeed separated their *ad hoc* function as a relief fund collectors by turning into a Foundation. For example, the *Republika* newspaper that formed a fundraising committee in 1993 and established a separate Foundation, which is the *Yayasan Dompot Dhuafa* complete with its own website to report financial use as a very simple form of being accountable. On the other hand, *Kompas* that started fund rising during the eruption of *Mountain Galunggung* in 1982, only established *Yayasan Dana Kemanusiaan Kompas* in 2010, and only in 2013 they own an independent website for transparency of relief funds.

Conclusion

The typical characteristics of the Indonesian people in *gotong royong* that is reflected in its mass media, has its own uniqueness. So, when permission is granted for media to turn into philanthropic institutions can no longer be avoided anymore. However, it needs to have clear and firm rules to regulations to regulate these things.

From these general situations and conditions of the media in Indonesia, in the end the public wish for; after the release of *Media Philanthropy Code of Ethics* in the beginning of

2013; that the media will need to have more serious commitment on their public accountability, especially when they already turned into a community fund raising institutions.

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