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The Research of Instructional Objectives of Science Education in Taiwan: An Experience of Biology Teaching in Junior High School

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Abstract
The rapid changes bring with the tide of globalization. To promote national development in upcoming knowledge economy and information technology, cultivation of talent becomes an important issue. School education must also be amended and adjusted. In daily life, the relationship of public and technology products is closer and thus the cultivation of scientific literacy is much more important. Therefore, researcher focus on science education in this study. In the traditional school education, teaching emphasis on knowledge learning. Teachers usually use direct instruction as the main teaching method, and students tend to mastery learning to get high scores in pencil-and-paper test. To adapt modern social life, Grade 1-9 Curriculum Guidelines especially shows that students obtain the knowledge and ability by scientific inquiry and experience of life. However, field instructor didn't own this kind of learning process this day. To help instructors produce more profitable instructional events, researcher investigates instruction design of nature science in this study. First, the study used document analysis to discover acceptable instructional objectives of nature science. Then researcher conducted focus group of a group of field instructors to analysis the instructional objectives. The result is to discover instructional objectives that reach the curriculum goal of Grade 1-9 Curriculum Guidelines and 12-year Basic Education, and meet the instructor's demand. Researcher expect this study could serve as a sample for science education related area.

Keywords: Instructional Objective, Science Education, Biology Teaching.

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Introduction

The rapid changes bring with the tide of globalization. To promote national development in upcoming knowledge economy and information technology, cultivation of talent becomes an important issue. In daily life, the relationship of public and technology products is closer and thus the cultivation of scientific literacy is much more important. The key issue is to enhance the scientific literacy of all people, and that is starting from taking root in scientific development. Elementary and junior high schools play an important role in the promotion of science education (Guo, 2012). In regard to the development of science education on elementary and junior high schools, there is Grade 1-9 Curriculum Guidelines and 12-year Basic Education in Taiwan. According to Grade 1-9 Curriculum Guidelines, the main goal of science education is to enhance the scientific literacy of all people. For adapting to the modern social life, learning of students should be based on scientific inquiry activities combined with experience of life to get related knowledge and ability (Ministry of education, 2003). Chang et al. (2011) indicate that the cultivation of ideal people is indeed of coordination of teacher's instruction, curriculum objectives and educational goals.

Education is effective by teacher's instructions, and there is an excellent instruction only by good instructional design. The purpose of instructional design is to bring up an educational blueprint, to make learner reach expected change of learning performance, and to create the best combination of instructional strategies, instructional method and designing instructional materials. Generally speaking, there are different models in Instructional Design, exist for different instructional purpose; however, the process is summarized in 5 phase, called as ADDIE model.

To detect if the instructional outcome is effective, definition of instructional objectives is an essential factor. Researcher conduct the first stage of instructional design, to find out learner's characteristics and define the instructional objectives clearly. Because the researcher majors in Biology and has been a teacher in junior high school, choosing biology-teaching instruction as research topics.
The teacher faces all kinds of the on-site difficulties; as a curriculum developer, an instructor and the researcher at the same time, it will be helpful to integrate the practice with the theory and to enhance the effect on biology curriculum.

According to the situation above, there is 3 purposes in this research.

1.To analyze the competence indicators of Grade 1-9 Curriculum Guidelines and the core competence of 12-year Basic Education in the field of the natural science education in Taiwan.
2.To explore the theory of instruction in the field of the natural science education.
3.To develop a questionnaire of instructional objectives for biology teaching in the field of the natural science education in Taiwan.

Reviews

According to research framework, there is divided into 3 parts, knowledge of biology, theory of instruction, and educational policy.
The questionnaire of instructional objectives is based on this framework. (Fig 1.)
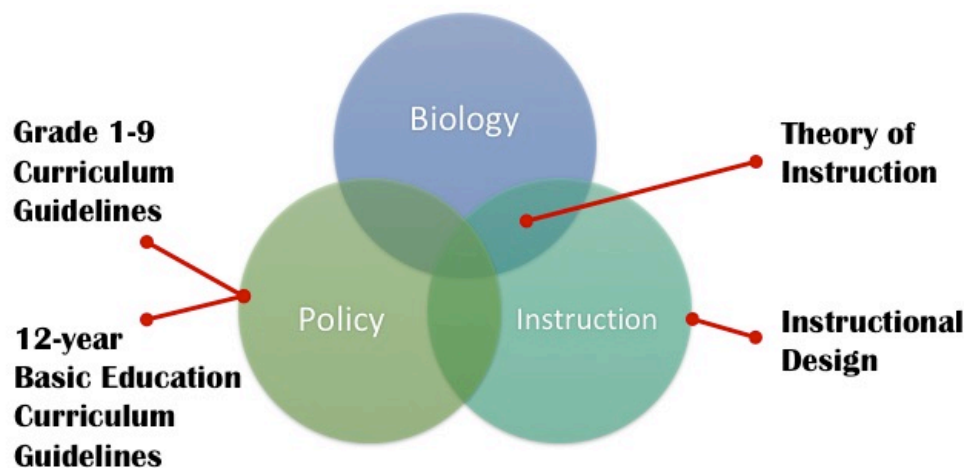
Fig 1. The framework of the questionnaire.

2.1   Instructional Design

Instructional design is based on learning theory, and to bring up an educational blueprint for specific people. The instructors organize learners, teaching content, teaching method, instructional objectives, and evaluation into an instruction. To make learner reach expected change of learning performance, as same as to reach the learning objectives, is the purpose of instructional design (Chang et al., 2011).

There is usually divided into 5 phase in Instructional Design, called as ADDIE model, A represent Analysis, D represent Design, D represent Development, I represent Implementation and E represent Evaluation. At first, to find out the learner's general characteristics and define instructional objectives clearly; on second stage, to learn about the ability that the learners are provided with, and to forecast specific entry competencies; selecting media and materials is next stage, and to design the teaching plan, included with the teaching activities which are appropriate for learners reaching the instructional goals effectively; then, to implement the plan in classroom; at last, we can make sure whether the instruction is successful to reaching the goals by evaluation.

Instructional design is a race that teachers conceive of the teaching plan, and there is systematic and reflective in instructional design (Wang, 2016). Poor design will waste time and resources, and also make instruction ineffective. To detect if the instructional outcome is effective, definition of instructional objectives is an essential factor. Thus, researcher conduct the research of instructional objectives, as same as first stages of instructional design, for biology teaching in the field of the natural science education in Taiwan.

2.2   Knowledge of Biology

"Biology" is the science dealing with living organisms, a term coined by J.B. Lamarck in 1802. From ecology to molecular biology, the science of biology studies them all. Biology is the science of life, including the structure, function, growth, origin, evolution and distribution of living organisms. (https://www.livescience.com/44549-what-is-biology.html, Retrieved April 2, 2014)

There are generally considered to be at least nine fields of biology, consisting of Biochemistry, Botany, Cellular biology, Ecology, Evolutionary biology, Genetics, Molecular biology, Physiology and Zoology.

2.3   Curriculum Guidelines in the field of the natural science education in Taiwan
Ministry of education (2003) announces a policy, Grade 1-9 Curriculum Guidelines, which says that the life should be taken as the center of curriculum objectives, also arranged the development of abilities about the learner in groups. To reach the goal, instructional design should take students as the principal thing, and curriculum has to be based on experience of life, for cultivating the basic competence of all people.

As a result of knowledge economy and information technology, there is a shift in the social culture and life recently. Getting information becomes easier, but it makes instructions much more difficult, especially the school education. As an instructor, we have to try an innovative method, accept the changing surroundings, and overcome the challenge these schools must meet at last.

According to the curriculum goals of 12-year Basic Education in Taiwan (Ministry of education, 2016), Grade 1-9 Curriculum Guidelines being assistant to, teaching activities would be based on scientific inquiry mainly in the field of the natural science education. By scientific inquiry activities integrated with experience of life, student would get related knowledge and ability, especially the competence of critical thinking, practice and problem-solving. We esteem it to be vital that students are active, and their motivation should be triggered availably.

About implementation of new curriculum, it takes scientific inquiry and learners as the center. Integrated with scientific knowledge and experience of personal life, we expect that learners feel helpful solving problems in life.

2.4   Theory of instruction in the field of the natural science education

There are 8 theories in science education for elementary and junior high school student (Chen et al., 2011), including constructivist instruction, inquiry-oriented instruction, problem-solving instruction, science-technology-society movement, teaching science as argument, teaching strategy such as Predict-Observe-Explain (POE), Outdoor Teaching Strategies, and Games for the Science Curriculum.

Besides rational and logic thinking personally, it should be paid attention to external factors of social, culture and ecology. It also attaches importance to interactive abilities with people, society and nature.

On aggregate, for students, we believe that the most important thing is to put into practice what has been learned, as same as the cultivation of critical thinking and creativity.

Methodology

During the study of instructional objective on biology teaching, there are research methods of questionnaires design, document analysis, focus group, and questionnaires survey. (Fig 2.)

Fig 2. Research design.

The researcher integrates instructional objectives of science education into a questionnaire, based on Grade 1-9 Curriculum Guidelines, 12-year Basic Education Curriculum Guidelines, and the theory of instruction in the field of the natural science education.

Focus on that students know what to learn, the establishment of curriculum is reality-based. It is significant about the strategy of solving-problem, using knowledge in practice, making good use of evidence, encouraging learners to think and discover, the cultivation of creativity, and interactive abilities with people, society and nature.

The researcher uses the questionnaire combined open-ended and close-ended questions, and applying the Likert scale to measure the importance of instructional objectives. There are 3 parts in the questionnaire, including foreword, information of research participants and main content. In third part of the questionnaire, there is description of instructional objectives. By scale, the research participants can point out the importance of each one.

After developing a questionnaire of instructional objectives for biology teaching, the researcher invites 6 teachers who have taught biology in junior high school being group members. By discussing with each other, the research participants put forward some revise of the questionnaire, on rearranging the sequence of problems and making the description concrete.

Then, the researcher conducting a pre-test, and the most important purpose of the pre-test is statistical analysis, including item analysis and reliability of the questionnaire. If Cronbach α value is more than 0.7, the reliability of the questionnaire is acceptable, showing that there is internal consistency.

The main aim of item analysis is discrimination testing, running descriptive statistics, the independent t test and the correlation. From descriptive statistics, there are averages and the standardized difference. The average which is more than 3.5 shows the fitness to the instructional objectives, and the standardized difference is under 1, which means the consistency of the participants (Tsai, 2006).

If there is a difference in statistical significance, it means that the instructional objective is important in science education for junior high school student. Otherwise, if it is not, the instructional objective should be corrected or deleted, shows that it is not appropriate to the questionnaire. At last, carrying out the questionnaires, it will be the basement of the future research in science education.

Results

About the study, there are 2 results, including a questionnaire of instructional objectives for biology teaching in the field of the natural science education in Taiwan, and the pre-test of the questionnaire.

About implementation of instruction, curriculum guidelines on 12-year Basic Education attaches importance to scientific inquiry, activation of students, and the knowledge combined with daily life experience. In addition to learning of basic knowledge, it is also important to cultivate the competence of thinking, practicing and problem-solving.

In science education, the researcher generalizes 6 parts of instructional objectives for biology teaching from Document Analysis. There is inquiry ability, problem-solving, rational thinking, innovation-creating, caring-attitude, and interpersonal interaction respectively. The result of Document Analysis is the questionnaire, composed with 6 parts and 49 questions. (Fig 3.)

Instructional Objectives	Q	1	2	3	4	5
Inquiry ability						
Problem-solving						
Rational thinking	49					
Innovation-creating						
Caring-attitude						
Interpersonal interaction						

Fig 3. First edition of the questionnaire.

After Focus Group, the questionnaire is revised to 5 parts and 32 questions. (Fig 4.)

Instructional Objectives	Q	1	2	3	4	5
Inquiry ability						
Problem-solving						
Rational thinking	32					
Innovation-creating						
Caring-attitude						

Fig 4. Second edition of the questionnaire.

Then, the researcher conducting a pre-test, getting 31 sheets of the questionnaire. Getting Cronbach α value is 0.808, which is more than 0.7, shows that the reliability of the questionnaire is acceptable. From descriptive statistics, we got averages and the standardized difference. The average of each question is more than 3.5, and the standardized difference is also under 1. (Fig 5.)

Question	N	Average		Standardized Difference	
32	31	max	3.74	max	0.37
		min	4.83	min	0.85

Fig 5. The result of pre-test of the questionnaire.

We know that the fitness to the instructional objectives of biology teaching for junior high school student, and the consistency of the participants. In the end, the questionnaire is available, and it will be applied to the research of instructional design for the future.

Conclusion 結論與討論

Cultivation of scientific literacy and attitude is related to superior science education on elementary and junior school closely. In order to that learners get excellent learning experience of science, being interested in science, showing the scientific literacy, the instruction of science education must be revised. Thus, the teaching effect on biology curriculum also be raised.

About biology teaching for junior high school students, we know that the instructional objectives can be divided into 5 parts, and there are 32 questions in the questionnaire. From the results, it says that the questionnaire is acceptable, and will apply to the research of instructional design for the future.

For the future, the researcher will release questionnaires to confirm the reliability, and it will be applied in teaching activities in practice. The questionnaire turns into a tool for the detection of teaching effect, and researcher expects that it is helpful for instructors actually.

Instructional design is professionalism of teachers, assistant to implementation of teaching activities. In the process of design, it can increase the understanding of knowledge of the subject and teaching, concentrating on coherence and logic between activities, to support instructors growing up in many aspects. There is an excellent instruction only by good instructional design. Thus, the teachers should keep growing on instructional design, and it should be token more seriously about teacher education and development of professionalism.

The researcher studies on instruction of biology for junior high school students in Taiwan. It brings out positive assistance for development of teacher's professionalism to clarify the instructional objectives and contents.
The most important thing is that it is worthy for advance and application of science education.

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School Lunch Supply Process From The Perspective of Service Design：
In The Case of Primary School in Yunlin County

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Abstract
School lunch program in Taiwan has been developed since 1954, in recent years, related studies and reports demonstrate that the trend of Taiwanese student wasting their school lunch is climbing. Every year, the number of wasted lunch is as high as several thousand tons and the wasting up to 1.9 Billion NT in cost. Those wasted food and cost may have an impact on Taiwan's economy, which may be a problem in society that shouldn't be neglect. However, there are rarely studies that focus on school lunch and its process. Furthermore, Service Design could discover current process and recognize the situation and solve the problem. Therefore this study will focus on using a service design approach to analysis the school lunch process. The researcher used method such as observation and in-depth interview to understand the relationship between school and group meal industry in the Process. Due to the time and resource limitation, the scope of the study is the case of primary school in Yunlin county .Then, by using the user journey map to analysis the information. The result of this study is the development of service design diagram from group meal industry to school lunch table .The result could be served as a reference on future study regarding lunch wastage .This study hope future studies could focus on reduce the school lunch waste.

Keywords: school lunch, supply process, service design

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1: Introduction

1.1General Background Information

Taiwan school lunch, from the 43 years of the Republic of China since 40 years, the school lunch purposes in the diet "concept" to convey the correct and correct bad habits "Eclipse" system development has been mature enough, more developed five lunch system, long operation to lay a foundation of health; modern society is facing excess food the problem of food box Association statistics, 100 schools in Taipei city every 70 thousand outward contracting lunch, 2 years to produce 2040 tons of food waste, conversion in 3 million 400 thousand to 1 meals lunch; an average of 55 yuan, 1 billion 807 million yuan (about 1 years of waste Si Ping Wu et al., 2016). The tendency for Taiwan students to waste lunch is increasing year by year, and students are faced with the problems of picky eaters and over spending, which may have unpredictable effects on Taiwan's economy for a long time.

1.2 Research motives

Taiwan today in a school lunch waste, but there are few studies to explore, in foreign countries have similar problems, but are corresponding to different culture solutions to improve the design process for a service can do a detailed analysis as the reference range of influence. This study will reduce the waste lunch process is divided into two stages. The first stage: to find the group meal feeding process, clear operation and gap system, analyze the possible causes of waste from the interview results, put forward the most effective suggestions for the waste. The second stage: the use of the above research data, the use of service design proposed effective waste reduction service process. Therefore, it is still in the first stage of this experiment, leading research, providing reference for future research, and reducing the waste of nutritional lunch.

1.3 Research objectives

I. provides school lunch meal in the process
The researchers will use the service design tools in the context of exploration, participant observation method to close to the lunch process, from the kitchen to the dining process of the school, the actual visit and observe, list today lunch procedures to enhance future continued study.

II. Analyzes waste gaps in the nutrition lunch supply process
The actual observation system process after lunch will interview staff inquire from the interview staff on flow experience and views, we can find the process of pain and opportunity to point out possible waste gap analysis.

1.4 Scope and limitations

Time and money, the field limits on the research at present will be locked in the range of primary school, Yunlin county not only from the study area near Touliu City, there are nine primary school, for this study, therefore, in this study, three primary school Touliu city as the main research field. The nutrition lunch supply process also has five different forms, and this study chooses the public and private model as the research target.

2: Literature Review

The two part of this chapter to explain the school lunch and service design, the first part explains the origin of Taiwan school lunch, lunch in Taiwan to understand the history, understand the purpose of nutritious lunch with different types of operation; the second part explains the definition of service design and service design, the core principle of thinking, and this study is the use of what kind of service design method in the process, why.

2.1 Taiwan school lunch

The primary purpose of school lunches is to address the problem of malnutrition among schoolchildren in remote areas and to improve the nutritional status of schoolchildren. Now different space-time background, school lunch in anti-populated metropolitan areas, in addition to industrial society, parents can solve the difficult to prepare lunch for school children, also hope that through the school lunch supply, so that students can get enough nutrients and teach children balanced diet ideas and cultivate students correct eating habits (government the Department of education, 2014).

The purpose of lunch is good, but also solve the problem of children nutrition, but also in the long-term development to become the parents at ease, but the kinds of data show that the rich resources now has caused a lot of waste, the development of a balanced diet system, but ignored the correct eating habits, so check the gap and lunch process to explore the lunch process waste, is the focus of this study.

2.1.1 School lunch supply model

In order to cope with the different needs of the development of school, school lunch five types, mainly government subsidized public schools _ mode, cooperation mode and private _ outsourcing vendor's _ private mode. Different types of services will have different processes, according to previous research literature shows that in the central part of Taiwan is the most public mode, so this study will also be classified as a public model. The following study summed up the relevant nutrition lunch business types, as shown in table 1.

Table 1 types of school lunch management

Public operated public	A government funded secondary school to build kitchen, purchase elevator, boiler, conditioning equipment, the establishment by the school faculty organization lunch Working Committee, in accordance with relevant laws to handle the business school lunch, lunch supply.
Public private	The government funded the construction of the school kitchen, elevator, boiler procurement and all the necessary conditioning equipment, and then from the school to select qualified registered private contractors, free use of the kitchen facilities and equipment, according to the implementation of the supply school lunch.
Joint public service	A central school with a kitchen, a school with a nearby lunch free kitchen, will work together on a nutritious lunch, cooked in the central kitchen, and sent to the nearby joint schools.
Joint private	Please center with kitchen of the school is responsible for leading the number of free lunch, combined with adjacent kitchen department, jointly select qualified registered private contractors, by private operators stationed in the school kitchen cooking, sent to the school lunch kitchen, lunch.
Private run	Refers to the school due to school restrictions and other factors have not set the kitchen, to register qualified manufacturers order cooked food to supply students lunch, supply way cent, meal bucket and lunch two kinds.

(Source: Yang Wei, 2007)

There are five different patterns of school lunch. Different supply patterns result in different lunch procedures, and according to the literature, the school lunch model in central Taiwan is: Public operated public sector (52.9%); Private run private (29.1%); Public private (12.3%); Joint public (5.7%); Joint private (0%).

The central Taiwan is located in the middle of Taiwan, including Taichung City, Changhua County, Yunlin County, Nantou County four counties.
(Data sources：Mr. Yang，2007)

This study selected the field, is a public mode, so you can understand the public is the most common in the middle small business model, so it can be concluded that the study covers a wide range , will be relatively objective.

2.2 Service design

UK Design Council1 (2010) said: "the service design is about an output available and effective, efficient and is expected to service the whole process of Birgit Manger (2009): service design is to ensure that our customer service is effective and efficient is unique. Live, work (2010) argues that "services to design innovative and practical way to improve existing services, and create a new service industry, finishing above expert opinion, therefore, find the problem from life to solve the problem, is the core of service design.

The information industry innovation institute introduction of R & D methods of design and development of innovative services _ from 95 years, creating suitable for service enterprises to use the theory research method of Taiwan Guide - "service experience engineering methodology (S.E.E. method) to assist the enterprises to carry out new service development in a systematic program, find out the development direction of the development of service innovation, service innovation products. Improve the success rate of enterprise service development. In view of the characteristics of S.E.E method in R & D, inquire about service innovation, so the research tools into the S.E.E method in assisting the investigation and integration of information system, is to utilize the services designed to help the research, using five principles of service design of finishing as the reference, the following table 2.

Table 2 service design thinking of the five principles

1.User-centred	The service must be centered on user experience and feelings.
2.Co-creative	In the design of services, all the stakeholders, such as service providers, service supporters, service receivers, and even non personnel, should be included in the design process as much as possible.
3.Sequencing	The service consists of a series of sequential actions, and the service process is clear and clear.
4.Evidencing	The intangible services and feelings are presented through entities and visualizations.
5.Holistic	In addition to include users and enterprise of the whole environment shown in consideration.

Data sources：Stickdorn and Schneider (2011)

Service design can help to study the complete context, using the principles of service design research to ensure users (using service) as the center, while the principle of commonality, order execution and visualization is used in data service, help service result derives the information clear chart and sequence.

3: Research Method

At present, the research process is divided into two parts _ research and experimental stage. In the research phase, research background and thesis as the research base, including public data, research papers, documents, and Internet content in the literature, the past research data, today's lunch research background into the research problems and research purposes. At the experimental stage, we use the previous research background, go to the field, do fieldwork, and use service design tools to analyze the data, and draw conclusions.

3.1 Research process

Study before the first to identify the problems and background, find related to lunch because the field of literature, strange and closed, so in the investigation before the first interview with the relevant industry, capture the focus from interviews, analysis of the seven key, after the interview with seven key to classification of the respondents. To observe the results, put forward the complete nutrition lunch process, and to summarize the supply staff with figures.
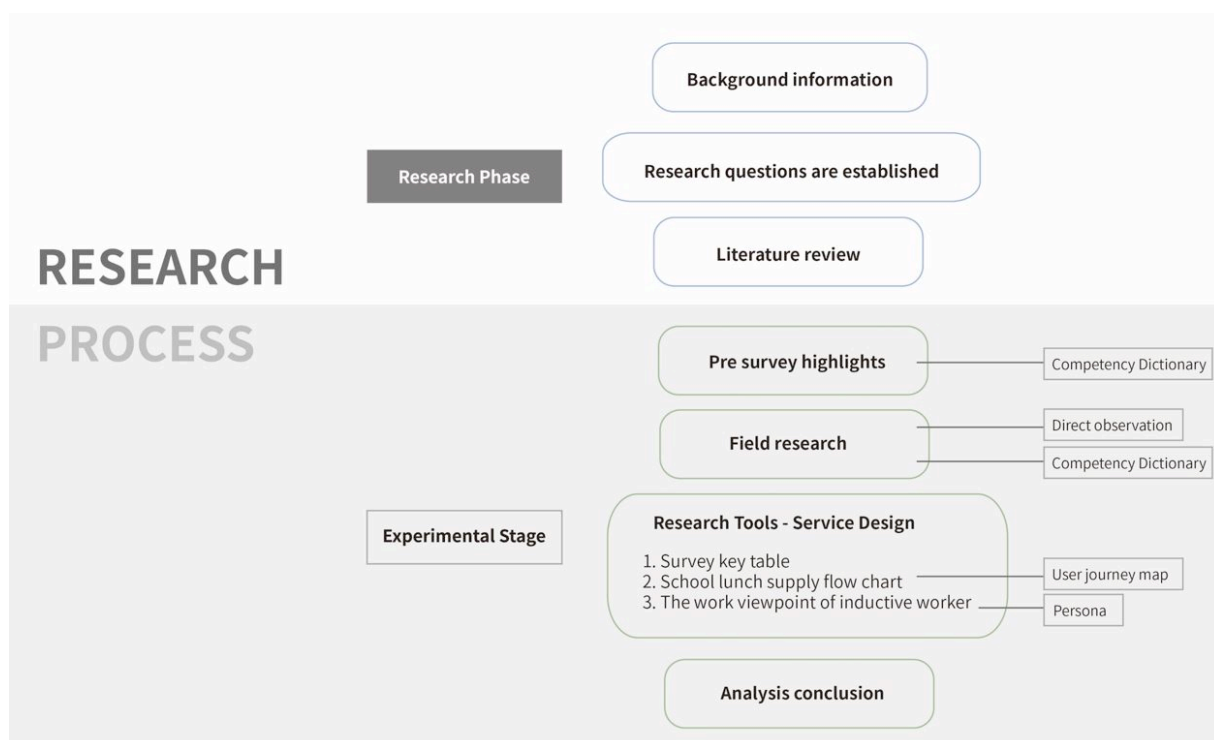
3.2 Research methods _S.E.E method

The interview method and S.E.E method are used to study the characters and customer service journey. Service design is an overall process (UK, Design, Council, 2010) that yields useful, usable, effective, effective, and desirable services. This study argues that the concept and tools of service design are in line with the social problems that this study intends to solve. Therefore, service design is used as a research approach (Xiao Shuling et al., 2009).

3.3 Research tools

3.3.1 Direct observation method

Direct observation refers to the observation or recording of what happened or the behavior of a person. The investigators were passive during the observation, that is, the investigators did not control or interfere with the observed events or actions. Direct observation can be divided into two methods: public observation and hidden observation. Public observation is the disclosure of the investigators at the site of the investigation, where the investigators realize that someone is observing what they have said and done. Covert observation refers to the fact that the investigated person is unaware that his actions have been observed and recorded. In most cases, the two methods are the direct collection of first-hand data by means of survey methods (MBA, lib, 2014).

3.3.2 Competency Interview

The term "functional interview" was put forward by Hermann, with the aim of distinguishing functional interviews from general interviews. The interviewee is limited to the staff or supervisor in charge of the analysis. In addition to the limitation

of the object, functional interview is structured interview, which is more systematic, and is mainly based on the function of a specific position. The interviewee's questions were asked to give specific examples in specific circumstances, and then the interviewee further asked the interviewee to give a detailed account of these specific instances (Hermann, 1989).

3.3.3 Persona

In order to design the product according to the user's needs, the character image is constructed by using the role description method to construct the target user's appearance and details. That is to say, the plot is a user centered design approach that reverses the way in which the product was developed and the design was created before thinking about the possible target market (mission life team, 2017).

3.3.4 User journey

Customer service users in the journey is used to show the process of achieving goals, experience a series of contact points, the relationship between the user and the service description through different points of contact, at different contact points describing the experience process, for the new customer service experience to provide a vivid and structured visual presentation (service design to follow, 2016).

4: Research Content

In the stage of research, through the literature that the school lunch program has five different forms, that the central region is the largest public public model, so that the choice of a public mode of study will be covering the highest; and the service is beneficial to inquire about the characteristics of the design and development of new service demand, is also very suitable for use in the study on the use of services, five design principles and framework of the research makes the whole process more clearly, it helps the research results output.

The main results of this study are as follows

1. Make the research interview record in key categories
   - Chart all the highlights of the interview and quickly catch the heart of the problem
2. The public catering process is made up of linear charts and identifies the limitations and gaps in the process
   -A linear chart can clearly indicate the timing of the service gap at what time and what events occur
3. Figure out the work point of view of the supply personnel
   - Characters have the characteristics of integrating character information and finding out respondents' values
4. After the results of the study, the reasons for food waste in nutrition lunch were put forward
   - You can see the slightest and the most serious waste by comparing the degree of waste in a strip arrangement

4.1 visits before focusing on

Lunch is complex, and hard to reach level, to make the interview and field investigation more efficiently, researchers in the pre survey, an interview with a minimum of 4 years' experience in the lunch system of kitchen workers, and from the interview, analysis of the observation direction needed in the study and the emphasis of interview, respondents the key is summarized as follows in table 3.

Table 3 summarizes key before the visit

Respondent information:	53 year old male, School lunch chef and golf instructor
Work experience:	10 years restaurant chef, For 4 years, a small lunch Chef (now) serves as a breakfast Chef
Interview keywords:	1. Health is of prime importance! 2. School cooks are not like chefs, more like workers, because the cooking methods and weight are limited, just follow the instructions. 3. Lunch will be given a lot , because manufacturers have signed a contract with the school, must let each student eat full, in order not to be violation. 4. Most of the cooking is done with a steam pan, so it doesn't taste very good
Analysis interview points:	Environmental sanitation, meal prices, cooking methods, nutrition and taste, food quantity, type and quantity of kitchen waste, waste suggestion

4.2 Field visits

Observation interview School: (1) Touliu city Yunlin County town west elementary (2) Yunlin elementary school (3) Gongcheng elementary
Time of visit: am9:00 - pm13:00
Number and type of interview: 6, cook, nutritionist, lunch Secretary

Table 4 Observation and interview results

Environmental Sanitation	In interviews with three chefs and nutritionists, they were asked "what is the most important thing in the process"? The unified answer is "hygiene".
Meal Prices	Lunch costs 600 yuan a month, about 15 yuan a meal, all the dishes come from the local, lunch costs are very cheap, but the quality of vegetables is very common.
Cooking Methods	Because the cooking time is limited, the kitchen cooking utensils are limited, in order to avoid food burning, almost steam cooker cooking, so that cooking is not very good.
Nutrition Taste	In terms of taste, as the seasoning and menu are controlled, the flavor is lighter, and the researcher feels good after trying actually, but it is difficult to get used to the heavy food and heavy taste.
Food Quantity	The campus and the vendor contract, provisions must let students eat, otherwise illegal, so the food will give 15%, while low grade students eat less than high grade, kitchen workers will be in accordance with the amount of food for different classes.
Type Quantity Of Waste	Visit three primary schools, a day about 15-10 kilograms of kitchen residue (dehydration), and the northern statistical difference, but the remaining almost all vegetables, and meat is the most popular, almost no leftovers.
Waste Suggestion	Asked the interviewee, "according to your experience, are there any ways to change the waste?" The answer is _ education.Food nutrition education is a better solution, says a nutritionist interviewed by us. "Creating a good home environment and campus environment will be the best way to solve the situation of kitchen waste."

4.3 Lunch supply flow chart

4.4 Summarized of supply staffs point of view

Persona

Nane : Mrs.Cha
Age : 43
Gender : Man
Status : Work for 10 years
Locaton : Yunlin County
Occupation : Dietitians

Respondents refused to take pictures

Work faith : Let the children eat nutrition balance and not picky eaters

Motivations :
Decision :
Influence :
Directness :
Difficulty :

Goals :
Lets nutrition which the child eats balanced very important, but also wants them to like having the lunch to be able the true health growth.

Frustrations :
Nutrition balanced very important, but not very tasty lunch ,the student does not like , amd go out to buy the food to eat instead the more unhealthy

Personality :
Professional knowledge
Nutrition
Monitoring lunch step
Decision menu

Summarized of supply staff's point of view

4.5 Summary

In this study, found that the school lunch program does have a lot of waste gap, listed below by the severity of waste, from mild to severe, from top to bottom to arrange.

1. School lunch is cheaper, resulting in meat and vegetable quality is generally low.
2. Dishes are generally repeated, but also by the nutritionist limited menu.
3. Cooking utensils are limited, not like the general kitchen cooking, delicious discount.
4. For each kind of different intake, the kitchen worker does not assign different weight to the system.
5. Children generally eat only meat and food, fried vegetables, vegetables and fruits do not often eat.

School lunch in the process there are a lot of waste and the research conclusion gap, the largest gap is a waste, the children and the children themselves don't waste food, after the concept of culture, the family may also indulge the child or neglect of diet education, cause the children no longer cherish food and waste; therefore concludes that the main reason for lunch waste for students, picky eaters, the solution includes family education, the problems with their own education, so after study, should strengthen the import of food education school lunch process, school lunch waste in order to effectively improve the problem.

5: Conclusions

The purpose of this study can be divided into the record of school lunch process, analysis of school lunch waste gap, the results of the study showed that the school lunch kitchen process to the image of the record, also marked process leads to a waste of the gap, used for future research to improve the basis, also by direct visit and interviews to collect data, analyze the causes of waste. Research to find out the biggest waste of students in the gap is fussy, follow-up study on the gap to make improvements.

The researchers will continue to focus on reducing waste in the school lunch, at present the study to find the largest gap in the waste in children, the follow-up may focus on improving children and children family education, food education will go to research all over the world, and think about how to import food education Taiwan education, construct the complete process.

Study on the value of this study in the main reason to find the school lunch waste, hoping to further research and help other researchers, and this research is currently only in the middle of the Taiwan primary school, and most schools in the city of waste of North and South high, hope there are different areas of study.

This research has encountered some difficulties, because the school lunch process is the manufacturers of school, is a closed process, it is often refused to visit and interview, 6 primary school in only 3 of respondents are willing to, and interviewed the kitchen workers because of busy, ever met but refused to accept the observation interview. And the attitude and tone are not very friendly, to complete the analysis process and the gap is hard, hope to follow-up researchers engaged in related research, to find the closest pipeline or agency for help, can help the research process more smoothly, and have more reference sample.

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The Research of Taiwan Virtual Idol Design Factor Analysis

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Abstract

In December 2014, Kaohsiung MRT works with creator to launch "K.R.T. GIRLS" in order to attract young people's attention, it received a great response. In addition, Taiwan professional baseball team Uni Lions also established girl idol group "Uni-girls Junior" at June 2016, the group also has three virtual idol to serve as its corporate image spokesperson. In October 2016, Taiwan Tainan City has also launched "Fucheng Xiaoman" to promote Tainan City's tourism and culture. More and more government units and enterprises want to attract young people through virtual idols. These virtual idols have a charming, lovely, friendly, even "Moe" appearance. Because virtual idol industry is becoming more and more popular, if the design principle behind the design of the virtual idol could be study, it is possible for future creator to create additional economic value. Therefore, this research will start from understanding the design principle of virtual idol in Taiwan. The research will analyze the literature of the character design to understand the design elements behind the character. And using Expert Assessment to verify the elements. Finally, using Case Analysis to examine the elements of Taiwan virtual idol for corresponding results of this research. The research result of this research is to unify the design concept of Taiwan virtual idol, in order to assist the new designers to enhance their design creativity. This research expect to serves as a sample for future researcher or designer to reference on.

Keywords: Virtual Idol, Character Design, Design Factor Analysis,

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Introduction

According to statistics data of 2016 from Taiwan highest level of the executive branch, the personal measures of national income and output in Taiwan, raised from 12,399 U.S. dollars to 19,653 U.S. dollars, during 1996 to 2016. The situation also improved people's consuming ability, and raised the development of anime industry in Taiwan. For example, one of the famous comic-con activity in Taiwan "Fancy Frontier", short of "FF". The FF1 begin at October 5 and 6, 2002, at Taipei World Trade Center hall 2 (now is Taipei Nan Shan Plaza), there are 550 peddlers were participated in this event. Furthermore, the FF29 begin at NTU Sports Center in February 11 and 12, the number of peddlers grew into 2000, they come from different countries, such as Japan, Hong-Kong and Singapore("Fancy Frontier Activity review ," 2017). This shows that animate industry have a great opportunities and consumers in Taiwan.

Because the development of animate industry, many Taiwan government units and private enterprises started to create virtual idol in the way of operating spokes-characters, hoping to attract the attention of animate consumer. For example, "K.R.T. Girls" is the virtual idol released by Kaohsiung MRT and SimonCreative team. on November 2014 (Feng & Yeh, 2014). At first, the K.R.T. Girls was only a temporary character for the comic-con activity at Kaohsiung, The Pier-2 Art Center. However, because the spread of news, media and the internet, the K.R.T. Girls began to be much more popular. So Kaohsiung MRT officially signed with the SimonCreative team, let the K.R.T. Girls become the spokes-characters of Kaohsiung MRT. At the same time, SimonCreative team set up the K.R.T. Girls Facebook fan page, according to statistics data of the fan page, the number of fans reached nearly 90,000 at December 2016. The K.R.T. Girls not only bring popularity, but also bring unique culture for Kaohsiung MRT.

Because the appearance of these special spokes-characters, they became a special culture for local, which also promotes the local economic and industrial development, and achieve the purpose of creating a business or local characteristics of culture.

Research Motives

Due to the improvement and progress of the technology, AR and VR become a tendency of the future, which makes virtual idol more indispensable and necessary. For example, Japanese Domino's Pizza worked with popular virtual idol – Hatsune Miku in 2013, using AR combined with APPs, in this way, the company makes 10 more times money than anticipated (Okama, 2013) , which reveals that the impact of virtual idol in this generation.

Therefore, this research will use the virtual idol cases in Taiwan as a sample, through analysis character's shape, color and characteristic, in order to understand the design method behind the character. In addition this research want to make basis and data for the freshman of designers and researchers, this is a good way to make them improved and created virtual idol with more characteristic, stylish. And the most important, make virtual idol more popular to people.

Research Purpose

Based on the research background and motivation, the main purpose of this research will focus on character modeling, and then deduces the design factor of the virtual idol. To understand what the design factor behind Taiwan virtual idol.
The purpose of this research is analyzing the design factor of the Taiwan virtual idol.

Limitations of the Study

The major analysis of this research are based on Taiwanese case, and the "human type" virtual idol is the main research object, so the scope of the research relatively is narrow, and it is difficult to include the numerous examples of spokes-characters. Beside the main design style of Taiwanese virtual idol is Japanese anime style. Due to the reason, the research will also follow Japanese anime style. In the future, researcher can basing on other type of spokes-characters as the main research object, and then understand the design factor and detail behind the other types of spokes-characters.

Therefore, the "spokes-characters" and "virtual idol" in this research are the human type of spokes-characters and virtual idol as the main description object. Other types of spokes-character and virtual idol are not discussed in this research.

Literature Review

Spokes-Characters and Virtual Idol

Spokes-characters, which made their debut in the late 1800s in the form of registered trademarks, have long been important forces in advertising strategy and American culture (Callcott & Lee, 1995). Until recently, spokes-characters has become an indispensable image representation, but also because the features of spokes-characters, companies and government unit starting to use spokes-characters as their spiritual or product image of the representatives.

There are many different interpretations of spokes-characters definitions. Callcott & Lee (1995) said that "Spokes-characters presented via hand-drawn illustration were thus joined by live humans and animals photographed in costume or in character." Wang (2004) said that "Spokes-characters are based on a comprehensive analysis of competitive environment, competitors and consumers psychology. Based on their own brand or product characteristics to design a viable cartoon character, animal or lifeless objects." In 2006, Holzwarth, Janiszewski and Neumann using the word "Avatar" to represent spokes-characters, and they said "An avatar is a graphic representation that can be animated by means of computer technology." The word "avatar" has its derivation in the ancient Indian language Sanskrit and refers to original definition, present- day definitions of an avatar refer to a representation of an entity. Hung (2016) define the spokes-characters as using drawing and technology to present human, animal, or graphical forms as a virtual character to promoting products or brands.

In the part of virtual idol, Zhang (2003) said that "Using computer technology to simulate characters. As long as people have emotional recognition with the character, it can be called that the character is a virtual idol." As the definition of virtual idol, and made a comparison with the definition of spokes-characters, it can be found that

they have very much similarities. For example, in the Kaohsiung Rapid Transit Corporation 2015 Annual Report, p57, it is mentioned that "KRTC launched "K.R.T. GIRLS" project in late 2014. The virtual idol station staff "Xiao Qiong" ..." Although the English translation is using "virtual idol" as a synonym, but the original Chinese used "spokes-characters" as a synonym. In south of Taiwan also has one virtual idol called "Fucheng Xiaoman", the Facebook fan page also mentioned that "Xiaoman is the spokes-characters that design for promotion tourism and cultural of Tainan City." Therefore, most of the virtual idols in Taiwan are combined with the advantages of spokes-characters and virtual idol, so that the character can bring more benefits and create more value.

Character Design

Different character design modeling will give people a different psychological experience, not only the designer subconscious will affect the character design, the character will also affect the viewer's emotions (Xu, 2005). So a successful virtual character was based on public recognition and moving (Zhang, 2005), and then make people impressed, become a common topic between people. Yet, the victual character are just like human kind, can be divided into two categories, "Internal" and "external" ."Internal" included the background story and personality, "external" included the character appearance, shape, costume and color.

About Internal, the relationship between the character and story is inseparable. In the story, character is the individual of having a specific behavior or personality, the character is also the leader of the story. The character can convey the subject of the story, and then triggering the resonance of the character and the story (Cai, 2006). A good story can inspire the charm of the character, and then attract the attention of the viewer. At the same time, special character personality will create their story, and then produce more different development of story. So a good character must have an attractive Internal, to make people deeply fascinated.

About external, with the appropriate clothing and modeling is very important. Zhang (2013) pointed out that "When designing a character, the character need to base on age, environmental background, with the appropriate costume and details, so that viewer will naturally feel the characters credible." At the same time, the character personality will not only affect the design of the character, but also in the character costume (Lin, 2016). In addition, color will also affect the character appearance, Chen and Wuang (2014) said "Color matching is to show the image of the character, so that the viewer can have intuitive, simple cognitive, but this color psychology is not absolute, the influence condition will according to the environment, mood, color experience when the viewer saw it." Human beings are visual animals, if the appearance of the character can be very attractive, it will naturally to make viewer have a deep impression with the character.

Summary

Based on the literature of the virtual idol, spokes-characters and character design, this research integrates the factors to design a virtual idol, for detail information please refer to Table 1:

Table 1: Virtual idol design factor

	Design Factor	Meaning
Internal	Story	The story part can be close to the background of partner, let character have more content, so that viewer will know more about the details. At the same time, the story will also needs character to perform, so viewer will more understanding the story behind partner.
	Personality	Personality will let character show their own story, so viewer will noticed about the character's detail. However, the character will have to speak for the partner, so the personality of character won't violate the social justice.
External	Appearance	Because the main work of virtual idol is speak for partner, so the character needs to have a popular look, and unite the Internal factor, which makes character have more features, using this way to attract viewers' attention.
	Costume	The costume design should be close to partner's visual image, and add more details from the Internal factor. In order to highlight the character's features, in order to make viewers have stronger impression between the character and the partner.
	Color	In color, it can use the visual color of the partner, to make the viewer have intuitive association. At the same time, the character personality will affected color, so choosing the right color can make character more special.

The Internal factors will affect character external factors, while the external factors will also affect the personality and story of the character. Therefore a good character design will have a lot of important design factors without losing consistency, so that the character will be more meaningful, and leave more impression to the viewer.

Research Method

The main purpose of this research is to analyze the virtual idol case in Taiwan, and derivate the design factor behind the virtual idol, in order to facilitate the development of related research. Although to the cases of Taiwan's virtual idol increased dramatically in recent years, there is not much literature of related topic, and there are also fewer case analysis in the industry. Therefore, this research is an exploratory study. And the research process of this research will be divided into three steps, as shown in Figure 1:
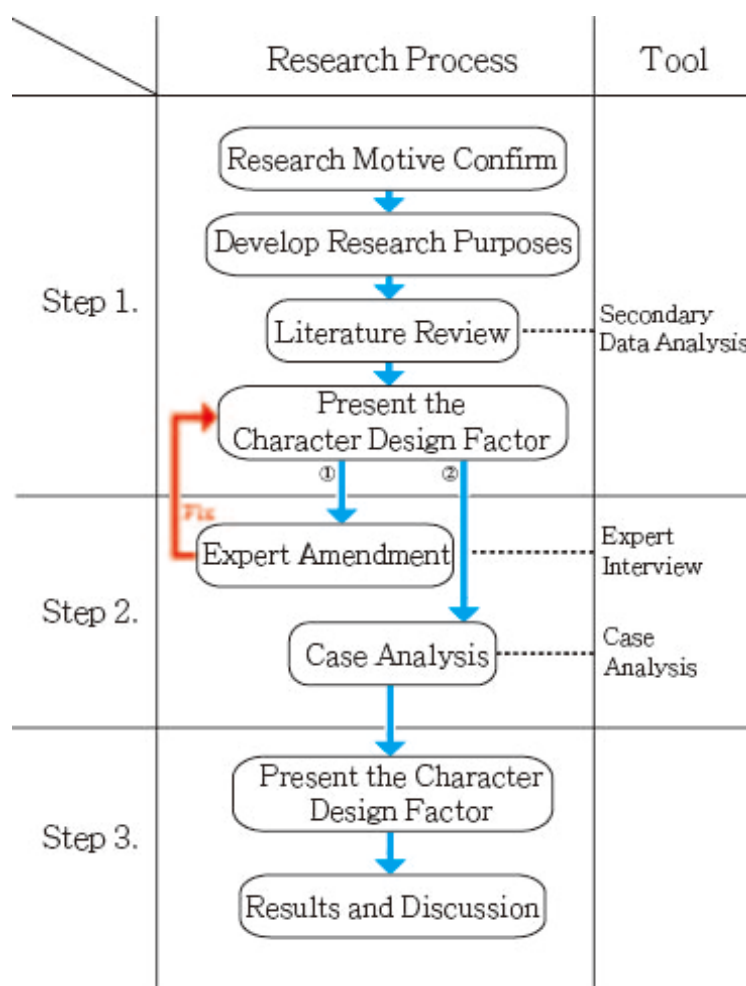
Figure 1: Research process

In the first step, this research will use Secondary Data Analysis to summarize the design factors required for character design, and make the first revision by Expert Interview. The Expert Interview is a semi-structured interview, in the part of sampling component, the expert interviewee does not represent the identity of a single case, it represent a group of experts with special professional (Uwe Flick, 2008). This research selected Expert Interviews in order to better understand the design factors of virtual idols. The experts interviewed are Taiwan's current character designer, and the character design work experience has more than five years, in the qualification, experience and professional background have a considerable degree. And the number of interviews in this research is based on the data saturation. When visiting the third expert, the answer begins to repeat, so this research will analyze the interview content of three experts, and then modify the first step of the design factors.

After the design factors have been corrected, this research will development a character design factor model, and then using Case Analysis to contrast the virtual idol cases in Taiwan, to deduce the feasibility of the model. And the Case Analysis is to explore a case in a specific context of the activities, and then to understand the uniqueness and complexity. Case Analysis can help researchers understand specific real situations, and then have a better understanding of the research (Jiang, Wu, Weng, Liu, 2000).

Research Result

Expert Interview

After the Expert Interview, this research found out that there are still many shortcomings in Table 1, but get a lot of valuable advice from experts, for example:

• Culture not only affects the design of the character, but also affects viewer. So the relationship between character and culture needs to be discussed.
• When designing a virtual idol, the balance between complexity and simplification is very important.
• Virtual idols can have their own colors, it can make viewers more impressive about character.
• Virtual idols need to be second created by fans, it could create more value for other industry.
• When designing a virtual idol, it is important to avoid setting the character too much, it will limit the development of the character.
• The design of virtual idol should focus on their external design, and then the Internal's factor.

Because "Culture" becomes an independent factor, this research will refer to "three-level of culture" (Yang, 2007) to amend the content of table 1, Please refer to Table 2 for the contents of "three-level of culture":
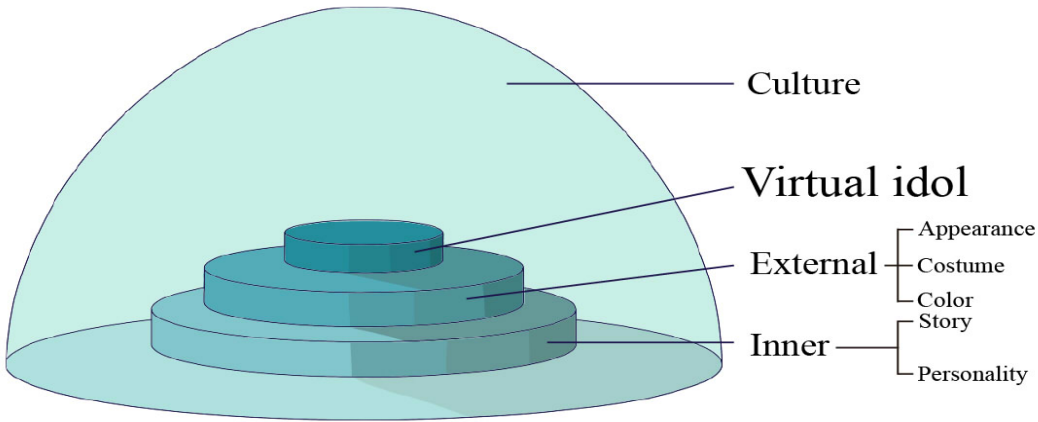
Table 2: Three-level of culture, Yang, 2007

	Meaning
Material Culture	Refers to the tools, daily necessities of life, as well as modern high-tech created machines. Human beings use the material culture to conquer nature and transform nature, and then obtain the necessary items for survival.
Institutional Culture	Refers to moral ethics, social norms, social system, customs, law and so on. Human beings through these communities and ethical culture, constitute a complex human society.
Spiritual Culture	Like art, music, drama, literature, religion and so on. Human beings use these expressions to be satisfied with the comfort and maintain the balance and integrity of humankind themselves.

As the enterprise or government unit is the main description object. So the three level of material, institutional and spiritual, will be the tools, business systems and entrepreneurial spirit, three kinds of content as a representative.

By summarizing the recommendations of the experts, it is understood that in the design of virtual idols, the design factors also have order difference. So this research not only in addition to adjusting the description of the table 1, but also add a figure, the degree of importance in accordance with the level of outward. Respectively, the virtual idol; appearance, costume, color; story and personality of three levels, and culture is covered by the design of the entire virtual idol, as shown in Table 3:

Table 3: The Character Design Factor Modeling

Framework

	Design Factor	Meaning
Culture		Different partners will have their own unique culture, and the cultural background will affect the design of character. Which not only increase the relationship between the character and partner, but also make viewer increase the recognition for the character. Culture will not only affect one design factor, it will affect the all of them.
External	Appearance	Since the main work of virtual idol is speak for partner, so the character needs to have a popular look. So it's important to unite the Internal design, increase the viewers impression of the character, and then to achieve the purpose of propaganda. That's the major goal.
	Costume	The costume design not only can fit the requirements of the partners, but also can refer the partner characteristics to design costume. Plus with the Internal factor, it can design the most suitable character costume. So that can make viewers have stronger impression between the character and the partner.
	Color	In color, it can use the visual way, to let the viewer have intuitive association between character and partner. At the same time, the character's personality will affect color choosing, so choose the right main visual color to is the most important thing of all.
Internal	Story	Character story should be based on the description of the partner, if the partner description isn't clear enough, then viewers can try to close to the partner background story, in order to make the impression between character and partner become stronger.
	Personality	The major purpose of virtual idol is to give publicity to the good image of the partner, therefore, the character personality can't be violated the social justice. In order to avoid viewer have bad image from the partner. The character's personality should be positive, which make viewer have a good impression for character.

For the viewer, when virtual idols have an impressive appearance, it will naturally be interested with the character first. Then take the initiative to understand the Internal details behind the character, therefore the external design of the virtual idol will be very important.

In the external part, the design is necessary to focus on the information provided by the partner. Although the attention of the viewer is important, but radical design should be avoid. It will resulting the character appearance become uncoordinated, making the viewer loses their sense of identity to the character, and affect the endorsement of its virtual idol. The design of virtual idols must have a lot of reference data, and take a good balance in the external design of character, in order to make partner satisfy.

Case Analysis

In the Expert Interview, due to this research through the correction of the external factor and Internal factor priorities, this research development the Character Design Factor Modeling. Therefore, this research will be based on Case Analysis to analyze the current virtual idol cases in Taiwan. This research will analyze the description of the character design and verify the contents of Table 2, and then modify and improve.

In order to analyze the reliability of the results, this research will use three different virtual idol as an analysis object. They are respectively, Xiaoqiong, XiaoMan, and Taipei 230. The research analyzes whether the model of this research conforms to the description of Taiwan's virtual idol.

K.R.T.Girls – Xiaoqiong
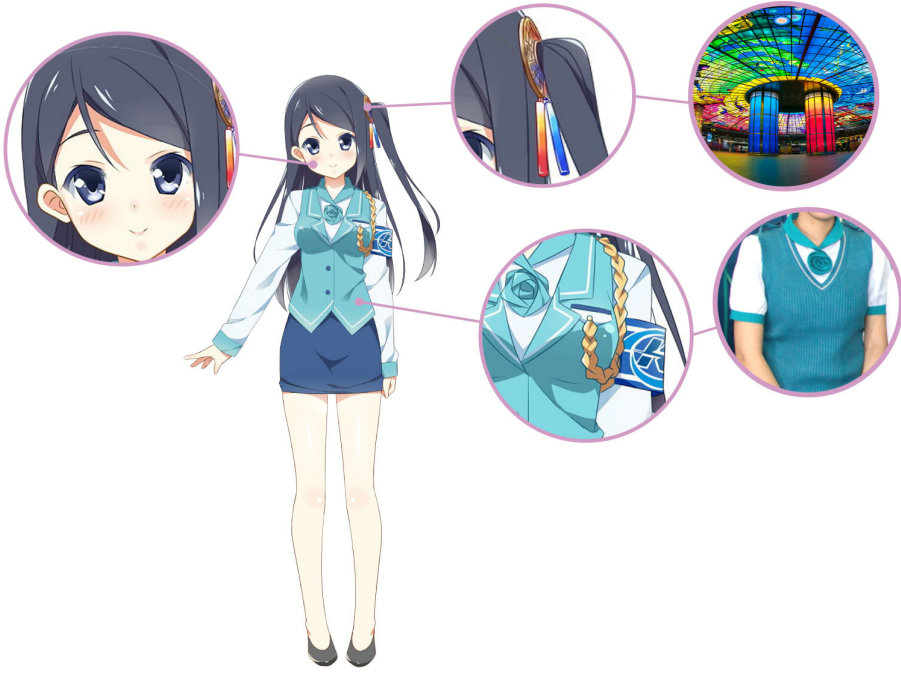
The K.R.T.Girls – Xiaoqiong is Kaohsiung MRT virtual station manager, launched by the Kaohsiung MRT company and the Simon Creative team at December 2014. At first she was only the promote character as a short-time activity, because she is very popular and so she became a regular employee of Kaohsiung MRT. The setting details about Xiaoqiong please refer to Figure 2:

Figure 2: Character Setting
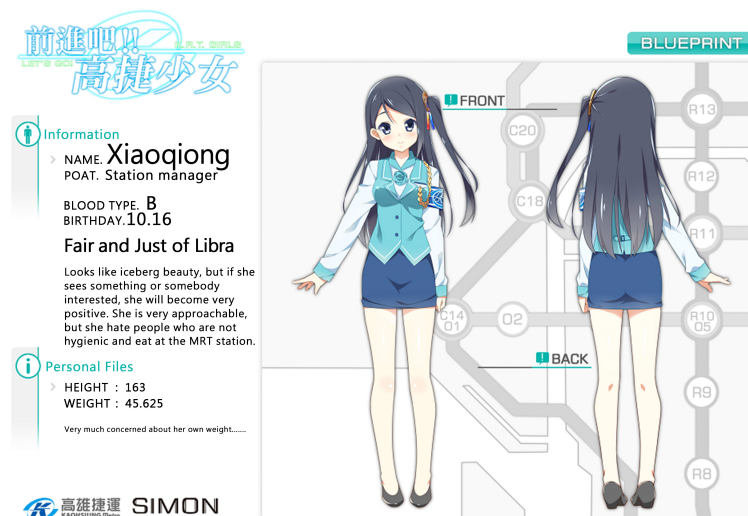
From the contents of Figure 2 can be understood, the setting details from the character "Xiaoqiong". Therefore, this research will be through the "Character Design Factor Modeling" to make a comparison with Figure 2, can be integrated the contents of Table 4:

Table 4:

Reference Picture			
	Design Factor	Meaning	Is it Suitable
Culture		Using Taiwanese black hair and black eyes as the main external features, and the character design is based on the enterprise vision and background, presenting a strong connectivity with the corporate.	Yes
External	Appearance	Beauty	Yes
	Costume	Kaohsiung MRT uniform, A hair accessory, which is inspired by the "Dome of Light" at Formosa Boulevard Station	Yes
	Color	Using Kaohsiung MRT uniform color, black eyes, black hair	Yes
Internal	Story	Because she very like the Dome of the Light of Kaohsiung MRT, to work at Kaohsiung MRT is her dream.	Yes
	Personality	Approachable, Positive, Fair, Just	Yes

By analyzing the appearance and text of the virtual idol " Xiaoqiong ", the Table 3 is fit with this character design factor.

FuchengXiaoMan

XiaoMan is the virtual idol launched by Tainan Department of Culture & Creativity Community Union and Taiwan illustrator VOFAN at October 2016, the purpose of this character is to promote the tourism and culture of Tainan City. The setting details about XiaoMam please refer to Figure 3:
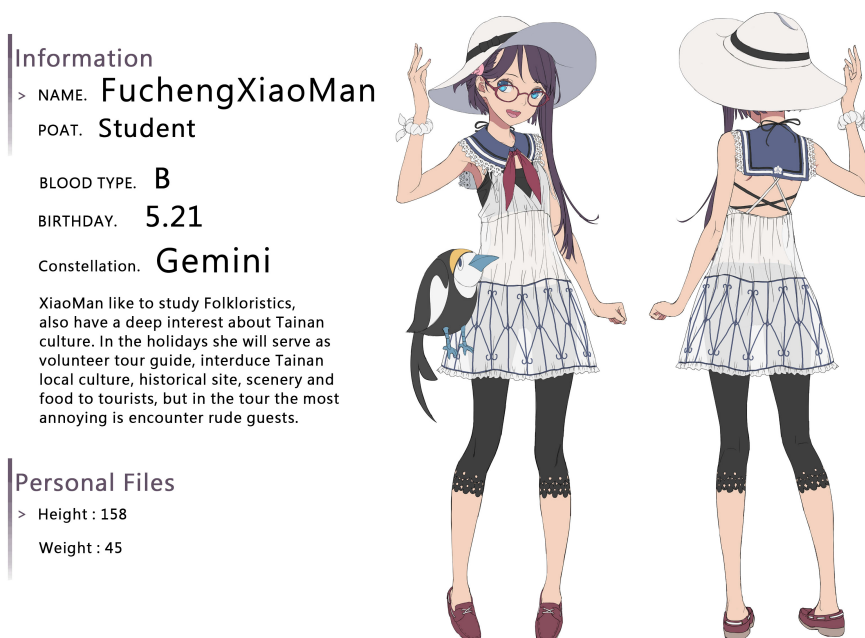
Figure 3: Character Setting

From the contents of Figure 3 can be understood, the setting details from the character "XiaoMan". Therefore, this research will be through the "Character Design Factor Modeling" to make a comparison with Figure 3, can be integrated the contents of Table 5:

Table 5:

Reference Picture

	Design Factor	Meaning	Is it Suitable
Culture		The design focus on the characteristics of Tainan City, from Tainan's literary atmosphere to the city flower and city bird, making the connect between character and Tainan City become stronger.	Yes
External	Appearance	Lovely, Cute	Yes
	Costume	With the Tainan traditional window grills dress, Phalaenopsis shaped hair clip, Pheasant - tailed jacana shaped fanny pack	Yes
	Color	Using summer tones to show the heat of southern Taiwan	Yes
Internal	Story	A student who living at Tainan and also like Tainan local culture	Yes
	Personality	Lively, Approachable, Positive	Yes

By analyzing the appearance and text of the virtual idol "XiaoMan", the Table 3 is fit with this character design factor.

Taipei230

Taipei 230 is the virtual idol launched by Department of Information Technology, Taipei Government and Taiwan illustrator Arc at August 2015, the purpose of this character is to promote the business and relevant activities. The setting details about Taipei 230 please refer to Figure 4:

Information
> NAME. Taipei230
POAT. Information Intern

BLOOD TYPE. Unknown
BIRTHDAY. Unknown
Constellation. Unknown

From the distant galaxy, code 230 information interns came to Department of Information Technology,Taipei City Government to serve everyone! Looking forward to meeting you soon!!

Personal Files
> Height : Unknown
Weight : Unknown
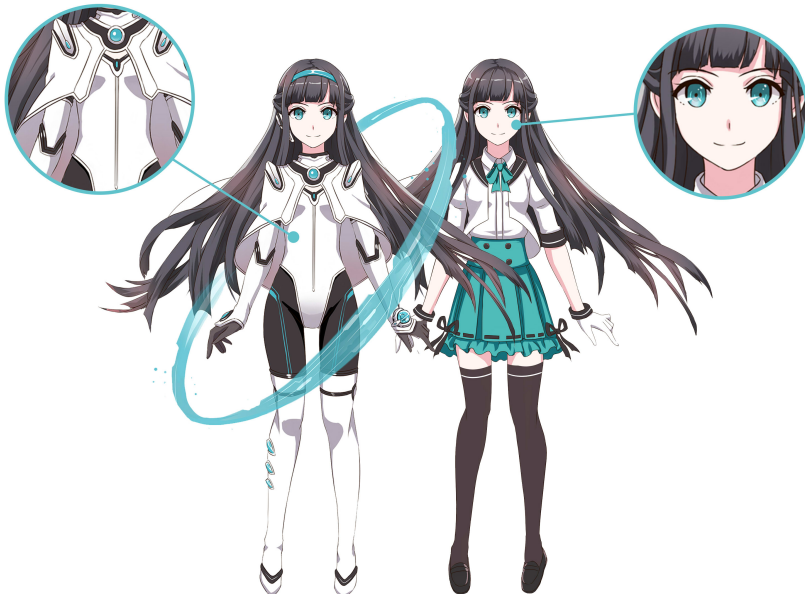
Figure 4: Character Setting

From the contents of Figure 4 can be understood, the setting details from the character "Taipei 230". Therefore, this research will be through the "Character Design Factor

Modeling" to make a comparison with Figure 4, can be integrated the contents of Table 6:

Table 6:

Reference Picture			
	Design Factor	Meaning	Is it Suitable
Culture	The character design is focus on the sense of science and technology behind the government unit, and show the spirit and attitude of serving the people.		Yes
External	Appearance	Beauty, Elegant	Yes
	Costume	The costume with a sense of science and technology, The costume that highlight the temperament	Yes
	Color	Using color full of technological feel	Yes
Internal	Story	A information intern from the distant galaxy	Yes
	Personality	A full of curiosity about the unknown, Approachable, Positive	Yes

By analyzing the appearance and text of the virtual idol "Taipei 230 ", the Table 3 is fit with this character design factor.

Conclusion

As technology advances, virtual idol is the new trend in the future. In Taiwan, a successful virtual idol must have an intuitive connection between character and partner. In addition, achieve the core objectives of publicity and promotion. In this research, after analyzing the virtual idols cases in Taiwan, it is concluded that the Character Design Factor Modeling has certain reference value.

Therefore, this research suggests that in the design of virtual idols is necessary to understand the core values and spirit behind the partner. Through repeated discussions with the partner to discuss and examine the results, the research is able to fully show the characteristics behind the partner. Thereby enhancing the corporate image. Furthermore, a virtual idol need to be manage in a long term, in order to create more value for the partner.

If designer and researcher want to learn more about the relevant issues, they can change the two research content right down below, to derive a model which is more completed.

- The main research object only from human type extension to multiple different types of modeling.
- This research is based on qualitative research. In the future, researchers can use quantitative research to make the content more reliable and complete.

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A Study of Comfort Elements Combine with Local Mascot
The Case of Yunlin Townships

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Abstract
Yunlin County, which located in south-west of Taiwan, west of the Taiwan Strait and consists of twenty townships. Due to its plain ground and fertile soil environment advantages which suits for agriculture, it has been being the main supplier of rice and vegetables, which had made a great contribution to Taiwan. Although there is an official mascot "KIMONCHAN" representing Yunlin County, there is no mascot for township individually. The mascot should contain affinity which let people feel close, harmless and being kind. The purpose of this study is looking for a method to combine those elements and to improve those to create a new harmless mascot for the townships. At the beginning of the research, the researchers will use Secondary Qualitative Study for the collection of mascot design. And analysis the color, and comfort elements, and combine the two data collection. After the completion of the data collection, researchers use focus groups to conduct interviews on design background students to get those who have Basic Aesthetics and Design Sensitivity for the mascot's opinion and the image of Yunlin local towns. The contents of the interview after the integration of the mascot in accordance with the results of the prototype design, prototype design is complete, the use of prototype for the comfort of the in-depth interview. As the research time and human, financial and other factors, all the township can't be the mascot design, therefore the study will output 1-3 township comfort mascot as a result.

Keywords: Comfort, Mascot Design, Yunlin County

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Introduction

1-1 Research Background

Animation in Japan has been becoming a flourish industry after World War II (GAO, 2015). It expands the character consumer market element of character creation, character merchandising, merchandising right, character authorization, etc. by the character which has been gradually mature. It becomes a new developing animation industry - character economy (3wyu.com, 2017). Character Economy orientates in two directions, distinction and resonates (Chen, 2015). Customers would be resonated through the interaction with the character, and build up the emotional connection.

Taiwan social structure changed, aging population, low birth rate, economic depression, high expenditure and the coldness of the society give the bread winner suffer from too much pressure that they have no way to vent. These factors produce a great amount of needs of comfort products (Lan, 2006). Comfort element is a kind of design with comfort and self-satisfaction function, which helps emotional resilience or recalling memories in deep. It is better to say this is the design people emotion and attribution rather than the goods (Chen, 2011). Comfort element character is being popular is because the consumption of comfort products helps people feel happy, relaxed. Consumers will get psychological satisfaction and companion (Yao, 2014). According to study, cartoon character is not only effect kids or youth. Once emotional connected, benefits generated. So that comfort element character is being popular as the life pressure is being increased (Li, 2014).

1-2 Research Motive

Apart from spiritual sustenance in comfort element character, workers would choose some activities to relieve. According to survey form 1111 Job Bank "Ways of workers to relieve pressure", travel is the best way of top three which chosen by the masses. 97% interviewees agree travel helps to relieve pressure. Survey in "Taiwanese travel behavior 2015" by Taiwan Tourism Bureau, enjoy the nature landscape is the major activities when people go travel. Yunlin Township is regarding peasants as core, using a long time to positioning on "Agriculture Capital". No matter how Yunlin own rich agricultural resources and pure natural environment, according to Taiwan Tourism Bureau "Survey of Tourists in Taiwan consumption and activity trend, 104th Year of ROC calendar", Yunlin was ranked in 19th out of 22 Townships of all the attraction travel sights (Taiwan Tourism Bureau, 2013).

"Kawaii" which is a Japanese word means cute has been manipulated as a tool in marketing. Lots of the cultural icons and products are using big eyes and small mouth as a selling point. Product advertising would also combine with cute mascot as an element. Selling cute is a common marketing strategy, motivate customer to pay (Barrett, 2011). Japanese mascot's trend is rising up in Taiwan. Kawaii culture create many mascots, the original intention of the creation is to excite Japan tourism. Mascot with bright and vivacious characteristic would increase people's desire for go to that place. Besides, mascots with high popularity can bring new incomes for the district and supporting community activities development (Wang, 2015). "Kumamon" which is the mascot of Kumamoto ken Township in Japan as an example, he brings 90million TWD incomes by the merchandise (Chen & Gu, 2013). Ikuo Kabashima,

the governor of Kumamoto Ken Township said the mission of "Kumamon" is not to being famous, is to promote the place successfully. In 2011, the visitors form Kansai to Kumamoto ken has increased to 4.9 hundred thousand. And "Kumamon" also brings economic benefits amounted to 1244 million yen (Kabashima, 2014). The company supported financially by the mascot to attract the attention of consumers is not a new thing. Tatung company has launched "Tatung baby" as the company's mascot since 1969 (Jhang, 2016), it still being a well-known mascot in Taiwan. Judging from this the mascot can bring positive benefits in the publicity and facilitate tourism development.

1-3 Research Purpose

In order to promote the local characteristics of Yunlin County, stand out the reputation of agricultural capital, and solve the problem that publics are lacking of understanding of Yunlin County. Character and local products will be intergraded for the design, and head for field research, capture the landscape for color analysis. Combine the mascot and the local characteristics would impress visitors, mascots with cute outlook would help for promoting. This survey will pick the most impressive place of the visitors to execute first. The basic requirements of mascot are being kind and feel close to people, comfort is to let people feel harmless and warm. Find out the common elements between mascot and comfort and combine, strengthen the kindness of mascot. Let the visitors can be healed during the journey.

1. Analysis the key elements of designing a comfort properties mascot
2. Analysis the local catachrestic of Yunlin County
3. Draft the Yunlin County comfort properties mascot design

1-4 Limitations of the Study

Although Yunlin County has the official township mascot "Kimonchan", there is no mascot represent the villages or towns. Yunlin County got rich agricultural products but still lack of distinction, caused the tourism industry is weak due to the promotion is not enough. Yunlin County mascot which can utilize its potential and the towns are nearby as an advantage. Therefore this study chooses Yunlin County as a theme to design the mascot with local characteristic and local products. Due to the limited of time and manpower, this study cannot help all the villages and towns of Yunlin County to execute the design. It will pick 1-3 trail places of the most impressive place of the visitors to execute first, to see the feasibilities of the design method.

Picture1: Yunlin County's official mascot" Kimonchan"

1-5 Conceptual Framework
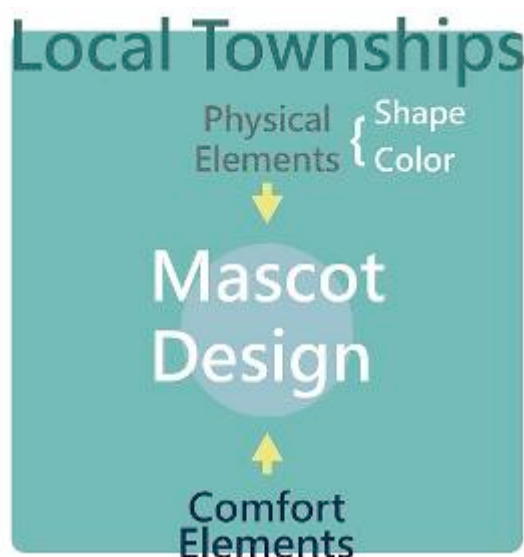
Picture2: Conceptual Framework

This study insert comfort element into local mascot design, to study the common characteristic between comfort and mascot. Explore how those elements can be combined, and strengthening the comfort characteristic of the mascot, let it function in promotion and publicity, additionally to comforting people. It can help to bring the tourism efficiency and to be comfort. Create a functional with local characteristic mascot through combining three main keys comfort elements, mascot and local. Let the mascot not only in use to promotion or publicity.

Role design performed in virtual concept, it display form of color, shape, and stimulate sense. Intrinsic value is main point for the role design (Gong, 2007). Color and shape is the first image to viewer, they can affect impression for viewer. So this research will focus on color and shape.

Literature Review

2-1 Yunlin County's Data
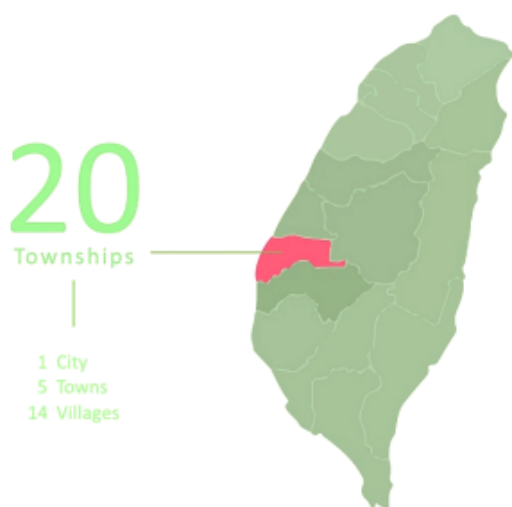
Picture3: About Yunlin County

Yunlin County, which located in south-west of Taiwan, north of Chianan Plain, west side of Taiwan Strait. It combined with one city, five towns, fourteen villages, total twenty towns and villages. Except Douliu city, Gukeng Township and Linnei Township are relatively in high elevation which located nearby the mountain, rest of the towns and villages are plain (Yunlin County Government). It has a great natural environment, fertile soil and water which suits for agricultural development. Every villages and towns produce their specific agricultural products. Yunlin County is also be the main provider of rice and vegetables in Taiwan, the tenant land is around 81 thousand hectare which account for 62% of the county (Huang, 2005). Yunlin County account 13.57% of agricultural industry, 14.96% of livestock farming in Taiwan, which has a great distribution for the industry (Liu, 2007). Although Yunlin County got rich agricultural products and natural environment, the tourism industry is weak.

Township	Local Specialty	Township	Local Specialty
Douliu	Wendangrapefruit、Orange	Dounan	Potato、Dairy cow
Xiluo	Xiluo rice、Vegetable	Tuku	White asparagus
Gukeng	Orange、Ma bamboo shoot	Dapi	Mustard
Linnei	Loofah	Erlun	Melon、Rice
Mailiau	Watermelon、Pork pig	Dongshi	Asparagus
Taixi	Quahog、Oyster	Yuanchang	Peanut
Kouhu	Peanut、Eel	Shuilin	Tomato
Huwei	Garlic、Honey	Lunbei	Bitter gourd、Dairy cow
Beigang	Peanut	Baozhong	Watermelon
Cihtog	Carambola	Sihu	Watermelon、Oyster

Picture4: Yunlin Townships Local Specialty Figure (Huang, 2005)

Picture5: Yunlin County Local Specialty Map 1 (Huang, 2005)

Picture6: Yunlin County Local Specialty Map 2(Yi, 2011)

Picrure7: Yunlin County Local Specialty Unified Map (this study sort out)

According to documents and chart's data, Yunlin County has a great supply of agricultural productions. The photo shown above is combining with documents'' data. Towns and villages are divided in different color. This study will follow the specific agricultural products shown on the map above to finish the design.

2-2 Comfort Element Analysis

"癒す"is a Japanese verb means comfort, which has a clearly objective and planned. Therefore, once the products could satisfy comfort and comfort requirements, no matter in hearing, smell or vision ways should call them "Comfort series". In fact, there is no word in Chinese can really define this word (Lan, 2006). So this study will use the word "comfort" for the description.

Many companies in Japan design cute toys specifically. With different generation and background, hottest toys would have different definition. Design the characteristic for the characters, or to express the people mind at the moment is a powerful medicine to

heal their spirit for Japanese (Su, 2015). Comfort series character is being popular due to the pressure of the society is getting bigger. Consumers can be satisfied and comforted by comfort products. Comfort properties would personalize product, and let consumer empathic emotion to it (Jhang, 2016).

In order to meet the objectives of comfort and comfort, comfort properties products usually would in pink, pure, childish and simple (Li, 2014). Besides Pei-Yi Lin has also defined the vision of comfort: It should be comforting and smelting people's heart in positive support in mental from the vision. Comfort in drawing or characteristic should be clean, exquisite, fresh and bright with soft color tone (Lin, 2016). Hence comfort properties can brings positive emotions, Che-Chia Hsu has listed out the positive image of comfort properties toys in four aspects, shown in table below (Hsu, 2010).

Figure1: positive image of comfort properties toys in 4 aspects (Che-Chia Hsu, 2010)

Gentle and affable	Use animal, sprout, baby and soft color tone that let people feel easily to close to.
Innovative	People would feel good even though the outlook and interaction are unexpected.
Leisurely	With static or no exaggeration movement, relax people and stand by their side.
Natural	Capture the sound or animal shape form the nature, simulate like standing there.

Integrate the information of study, to heal, comfort characteristic, clean and simple image, bright and gentle should be the basis. Cute, simple, childish, rounded appearance with soft color tone would comfort people's vision, and bring positive emotion affection. Baby animal, sprout and baby are used to express affable characteristic. "Supernormal Stimuli" by Deirdre Barrett has mentioned "neoteny", which means primaries trait reserved till mutual. People will get attracted when the mature creature shows the primaries trait (Barrett, 2010). Therefore "primaries" characteristic make people think is adorable and the elements mentioned above will be the key point of the design.

2-3 Mascot Design Elements Analysis

"ゆるキャラ" is short term of "ゆるいマスコットキャラクター" in Japanese word means mascot character. Forepart of the word "ゆるい" is an adjective which describe hope people would love them and be relaxed at first sight(Su, 2015). "ゆるキャラ" translated by Mr. Jun Miura from English to Japanese word. He said it was translated for a local autonomous organization's event that to activate a village. The event PR named the products mascot — "ゆるキャラ", especially refer to costume. Mr. Jun Miurano has listed out three conditions of "ゆるキャラ".

1. Can let people strongly felt love from hometown
2. Behavior, manner, movement is being unique and intangible
3. Enamored and leisurely and carefree

The word of mascot is representing characteristics and properties, so it should not be complicated. As long as to wisely use the image and keywords, and to be done after unified image with logical concept. Shape is easily imagined in brain. Therefore shape is a key of mascot (PUKUMUKU, 2013). Simple design can increase more memory points. Role design should able to show the character's personalities and characteristics, it can be an exaggerated or deformation design. Character identification is depending on modeling characteristic. On The other hand, mixing with different elements in the design can strengthening memory points of the role, but the body must be an animal that can deepen everyone's impression said the director of Japan local mascot association Shinsatsu Arakawa (Wang, 2015, quoted from the interview content).

The key to design mascot is the setting of mental and physical of the role. Role design performed in virtual concept, it display form of color, shape, and stimulate sense. Intrinsic value is main point for the role design, color applications will also affect the image and model of the story (Gong, 2007). We see seven colors composed in rainbow, they each have different wavelength and usage. Colors vibration will stimulate human body and heart, also deeply connection with sensory consciousness (CR & LF Institute, 2008). Using different color and form can bring viewers feeling completely different.

To explore the suitable modeling with role's personality, study shows it trend to rounded body shape of the role with cute, simple, lively, positive, politeness, filial piety and shy personality. Those are likely be inclined to lovely, lively, optimistic and rounded body would be advantage (Hong、Lin, 2016). Cute modeling generally has the following characteristics: fat, plump cheeks, big head, high forehead, short jaw, big eyes, and short limbs, tend to be baby (Yang, 2002). The entire characteristics mentioned above are just the same with "neoteny". In order to express affectionate elements, the comfort characteristics and mascot design are in inseparable relationship with "neoteny". The appearance and character will become cuter after "neoteny".

2-4 Conclusion

Picture7: According to Hong Pei Lins, 2008 (this study sort out)

The key to design mascot is the setting of mental and physical of the role. External appearance is designed with color, shape, and other visual sensory as the main factors. According the character to design the appearance with simple and high reorganization as a basis, mix with multiple elements especially animals which can deepen impression for everyone.

To strengthen the role of the lovely degree is same as comfort properties. Extend with "neoteny", rounded face and body, high forehead, short chin, as well as large eyes,

and short limbs, with clumsy action. Strengthen these characteristics of babies to being enamored. Usually would use baby animal, sprout and baby in clean, soft color tone to express affable characteristic. And to let everyone feel relax and to close to. The following study will continue with local products with the above design elements for the draft production.

	Shape	Color
Physical	Cute、Children's interesting、Unexpected、Exaggerated or Deformation、Simple、Clean、Meticulous、Plump、Plump Cheeks、Big Head、High Forehead、Short Jaw、Big Eyes、Short Limbs, Tend to be baby. Capture the plants and animals shape form the nature: Like Animal, Sprout, Baby. Mix with multiple elements especially animals which can deepen impression for everyone.	Soft、Bright、Brisk、Pink Series
Mental	Hometown Lover、Neoteny、Humanity、Kind、pure、Children's interesting、Cute、Naive、Vibrant、Proactive、Polite、filial piety、Timid、Optimistic	
Behavior	leisurely and carefree、Neoteny、unexpected、Static or No exaggeration's action、Behavior, manner, movement is being unique and intangible	
Emotion Resonance	Comfort、Comfortable、Relax、Pleasant、Melting、companion、Enamored、empathic emotion , positive support in mental from the vision.	

Picture8: Comfort Elements & Mascot Design Elements Table (this study sort out)

Methodology

3-1 Study Process

This study divided in four stages, previous work, execute, design and result. In the analysis stage will use secondary research method to collect and sort out documents in a short period. Defining stage will use focus group method because the interview would involve mascot image, color and comfort properties. Therefore focus group targets will specific to those students with design background for the interview. After collating the content of the interview would result the keywords for the design, then conceive and integrate with logical concept to create a prototype design.

Study Research
Process Method

Set Topic

Collect & Sort out
Documents — Secondary Qualitative Study

Set goal — Online Survery Questionnaire Research

Previous work — Explore Yunlin's image — Semi-Stryctured Interview

Execute — Field Study — Field Research

Design — Prototype Design

Result — Conclusion & Suggestions
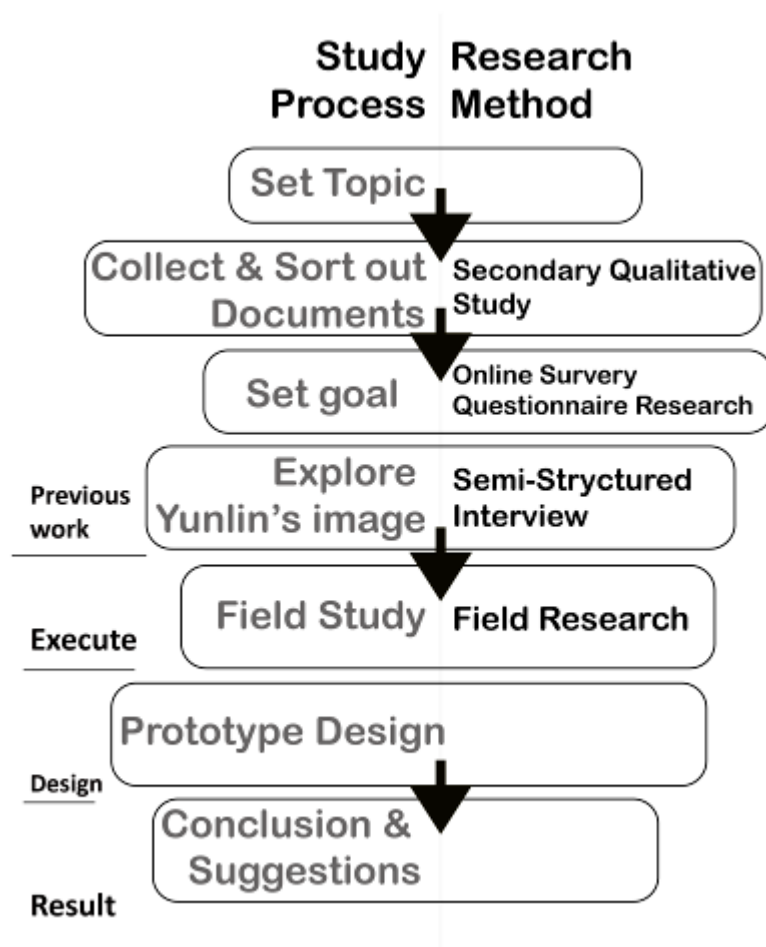
Picture9: Study Process

3-2 Research Tool

1.   Secondary Data Analysis

Secondary data analysis is to collect data from existing literature and second-hand data, low cost and rapid is the advantages of the method l (Yang, 2005). Since the time of this study is limited, it is necessary to collect data of Yunlin Township attractions, mascot appearance and color, and comfort characteristics in a short period of time. Coupled with the following collation of the literature, the study will use secondary data analysis method which saves time and cost, and helps to obtain useful information in the shortest time.

2.   Semi-structured Interview

Semi-structured Interview can be quantitative or qualitative. Researcher will draft the guide before the interview, it will basis on open-end question, guided interview, no limit of words and the order of questions, but it has to be related. Therefore, the questions and discussion will be flexible. (Lin & Yan & Chen, 2005)

3.   Online Survey Questionnaire

The greatest strength of using the online survey is low cost but with high efficiency, data transfer instantly. Therefore, this study will use the online questionnaire to investigate public awareness of Yunlin Township and the highest visiting rate of the township and the reason.

4.   Field Research

Field Research is a methodology base on Cultural anthropology and archaeology. Record the field data in person can strengthen the study. Field Research is a necessary sub process (Li, 2009). So this study will use field research and record the field by photographs and color analysis for reference.

Results
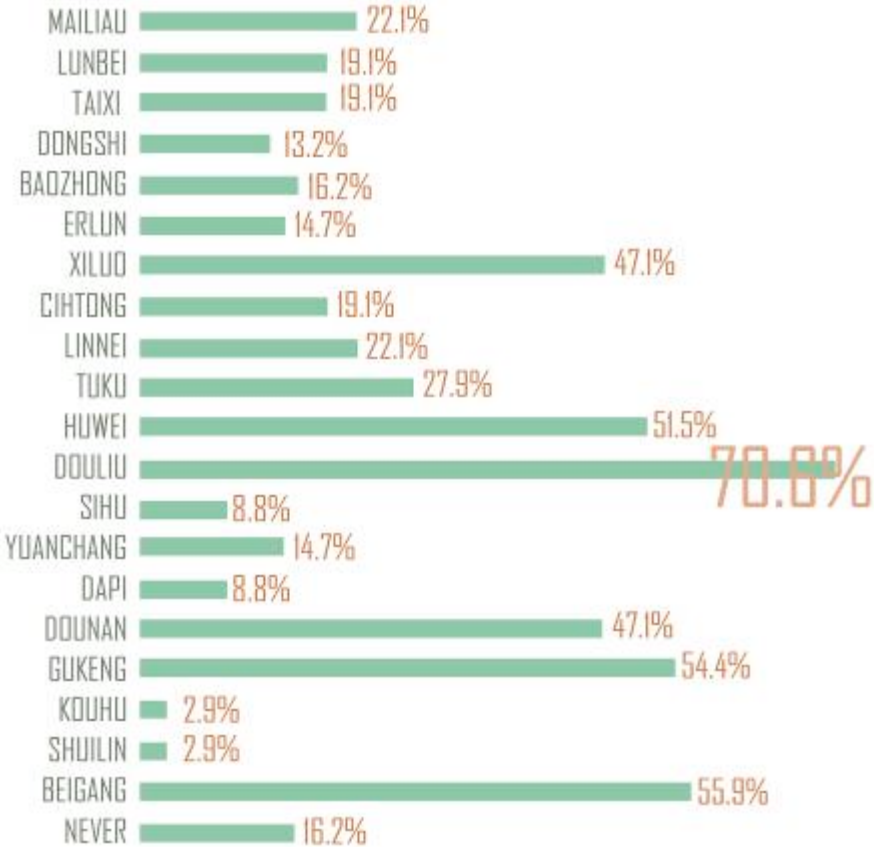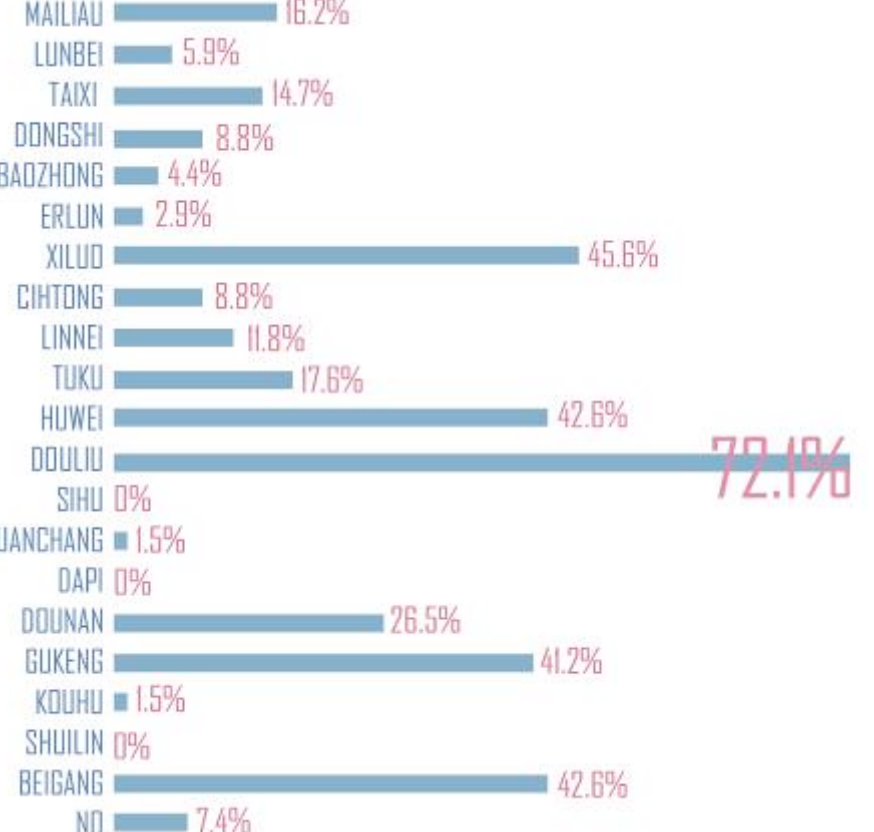
4-1 Online Survey Questionnaire Result

This questionnaire is mainly used for pretest, to result public's level of awareness of Yunlin County. Questionnaire divided in three parts. The first part is baseline data. Second stage is awareness of Yunlin County, and whether they have visited Yunlin County. The last part is the townships that visitors will go and the most impressive place of Yunlin County when they arrived.

Figure2: Online Survey Questionnaire Result

Gender	58.8% FEMALE 41.2% MALE
Age	26.5% 26.5% 5.9% 7.4% 8.8% 1.5% 1.5% 2.9% 1.5% 1.5% 2.9% 2.9% 1.5% 2.9% 2.9% 1.5% 1.5% 17 19 20 21 22 23 24 25 26 28 29 31 32 33 36 38 40

Have ever been visited to Yunlin County	NO 16.2% 83.8% YES
Visited Reason	TRAVEL STUDY OTHER go back to hometown Interview LOCAL WORK PASS — 44.3% 27.9% 11.5% 6.6% 4.9% 4.9%
	Other Reason：Go back to hometown、Interview、Unfilled
Familiarity Degree	22.1% 23.5% 27.9% 22.1% 4.4% NOT FAMILIAR VERY FAMILIAR

Have been Visited Township	MAILIAU 22.1% LUNBEI 19.1% TAIXI 19.1% DONGSHI 13.2% BAOZHONG 16.2% ERLUN 14.7% XILUO 47.1% CIHTONG 19.1% LINNEI 22.1% TUKU 27.9% HUWEI 51.5% DOULIU 70.8% SIHU 8.8% YUANCHANG 14.7% DAPI 8.8% DOUNAN 47.1% GUKENG 54.4% KOUHU 2.9% SHUILIN 2.9% BEIGANG 55.9% NEVER 16.2%
Impressed Township	MAILIAU 16.2% LUNBEI 5.9% TAIXI 14.7% DONGSHI 8.8% BAOZHONG 4.4% ERLUN 2.9% XILUO 45.6% CIHTONG 8.8% LINNEI 11.8% TUKU 17.6% HUWEI 42.6% DOULIU 72.1% SIHU 0% YUANCHANG 1.5% DAPI 0% DOUNAN 26.5% GUKENG 41.2% KOUHU 1.5% SHUILIN 0% BEIGANG 42.6% NO 7.4%
Why	Douliu	Janfusun Fancyworld、Dessert、Douliu Night Market、National Yunlin University of Science and Technology、Wendangrapefruit、Prosperity

	Huwei	Huwei Sugar Refinery、National Formosa University、Jianguo Village
	Gukeng	Coffee
	Mailiao	Liuqing Industrial Zone
	Dounan	Fried Steamed Bread
	Xiluo	Xiluo Bridge、Soy sauce、Xiluo Old Street
	Tuku	Fried chicken
	Beigang	Mazu Temples、Religion Festival

68 questionnaires has been collected. According to the results of the questionnaire, the visit rate of Yunlin County is high, and the mainly reasons is for travel. Only 3 people answered knows Yunlin County "very well", this shows most of the people do not know Yunlin County so much. The top three impressive townships are Douliu city, Xiluo Township, Beigang Township and Huwei Township which got the same vote. The study will choose three places for the prototype.

4-2 Semi-structured Interview Result

Five interviewees, aged at 22-25. The purpose of the interview is to explore the overall image of Yunlin Township to foreigners. Result their first impression and feelings through their observation.

Question	Answer
Yunlin overall image	Fantasy、Have Neofelis nebulosa、Backward、Air pollution、Agriculture Capital、Fruits and vegetables、Last Generation's Hometown、Warm、Night Market
Yunlin Features Townships	Douliu、Huwei、Xiluo、Gukeng
Township Color Image and First Impression	
Douliu Color Symbolism	Blue、Light Blue、Green、Soil Color
Douliu First Impression	Wendangrapefruit、National Yunlin University of Science and Technology、Douliu Railway Rear Station、School's Mango Tree
In impression 's Douliu Specialty	Wendangrapefruit、National Yunlin University of Science and Technology
Huwei Color Symbolism	Orange、Yellow、Gray
Huwei First Impression	Tiger、Huwei Sugar Refinery、Huwei Bridge、Towel Factory、Huwei High Speed Rail
In impression's Huwei Specialty	Palm Puppets、Sugar Refinery's Wheat Ice、Towel、Meat ball
Xiluo Color Symbolism	Grass Green、Red
Xiluo First Impression	Xiluo Bridge、Field
In impression's Xiluo Specialty	Rice、Soy sauce
Gukeng Color Symbolism	Brown
Gukeng First Impression	Huashan
In impression 's Gukeng Specialty	Coffee
Friendly、Comfort Image	
Color	Macaron Color、Blue Scheme、Orange、Red、Green
Image	Cat、Kumamon、Soft Doll、Capybara、Bed、Slime
Shape	Circle、Curve、Arc shape、Oval、Triangle

Picture10: Semi-structured Interview Result

According to Semi-structured Interview result most of the outsiders are unfamiliar with Yunlin County. Compare the result with the previous literature review, they still got some linking parts. This study will integrate all the overlap elements as the keys of prototype design

4-3 Field Research Result

The field research locations are refer to the recommendations of Yunlin government website. Refers to the recommended attractions on Yunlin County government website, 1-3 attractions will be selected, 5-10 photos will be taken for color analysis. With consider of the convenience and quickness, online tool "Pictaculos" will be used for color capture coordination by removing the black, white and repeated color. Consider the comfort characteristics creation, soft and visually comfortable color from the capture will be selected as the mascot design's reference color. The following is the field research location of the study:

4-3-1Field Research Place

Figure3: Douliu Field Research Place

Orange Ranch	Grapefruit Farm	Tri-small Market
Douliu Fuhsing Temple	Taiping Old Street	
Douliu Roundabout	Douliu Baseball Field	
Douliu Hangqi Memorial Hall		

Fgure4: Xiluo Field Research Place

Xiluo Bridge		Xiluo Fuhsing Temple
Wuan Chuang Soy Sauce		Jen-wen School

Figure4: Huwei Field Research Place

Yunlin Palm Puppets Museum	Yunlin Story House
Chih Fa Mazu Temple	
Huwei Sugar Refinery	
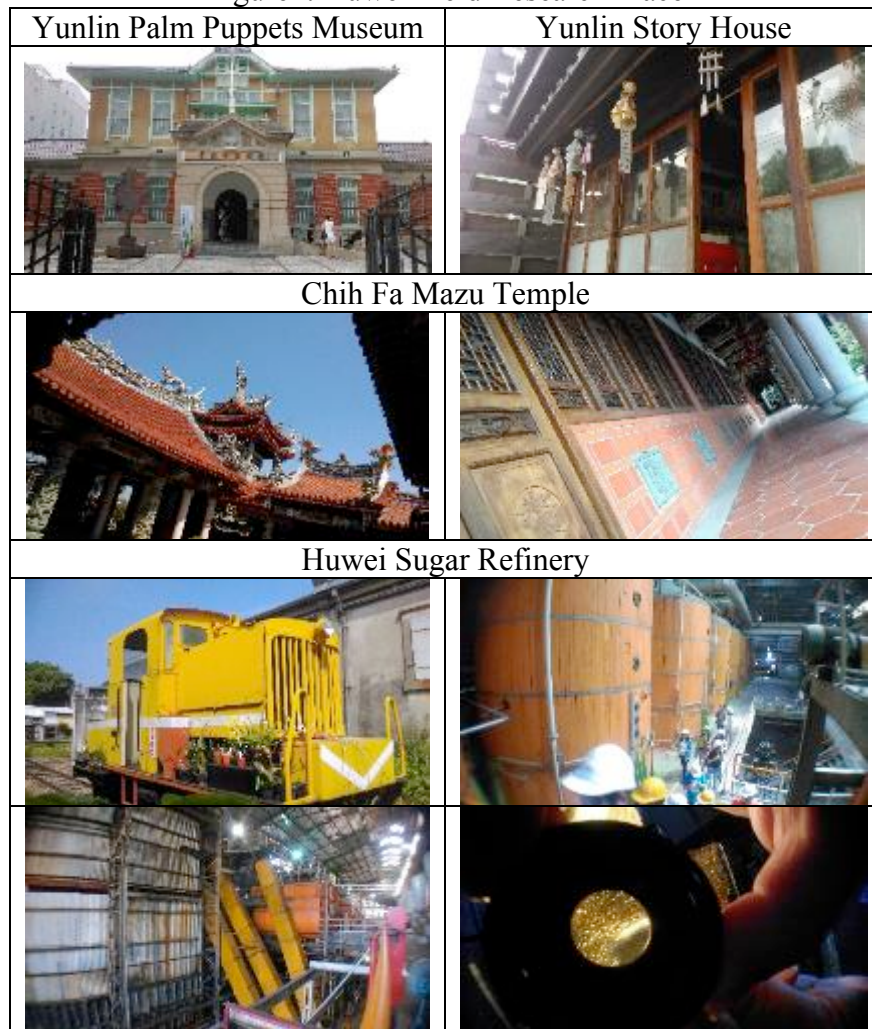
4-3-1 Color Analysis Result

Figure5: Douliu Color Analysis Result
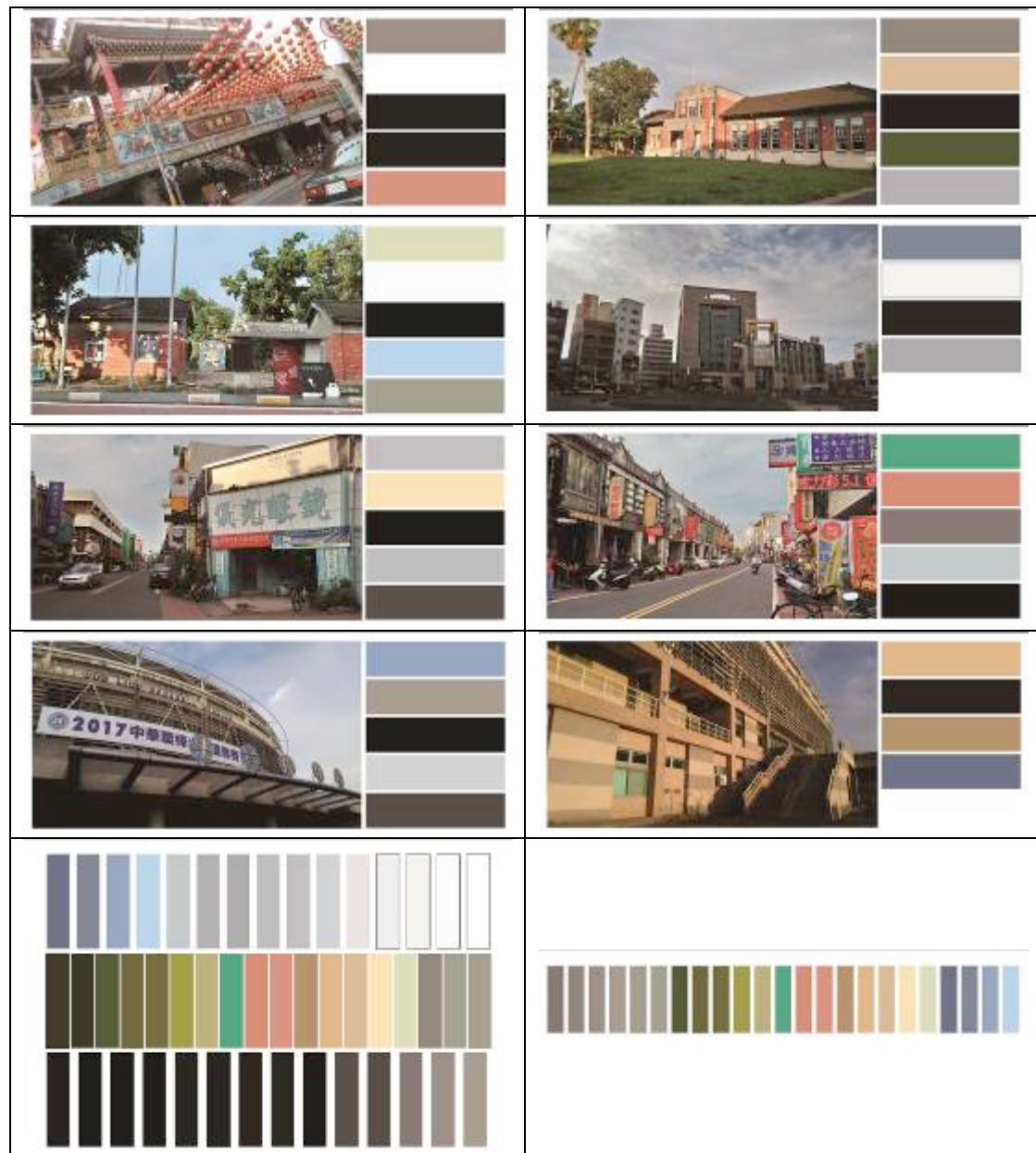
Figure6: Xiluo Color Analysis Result
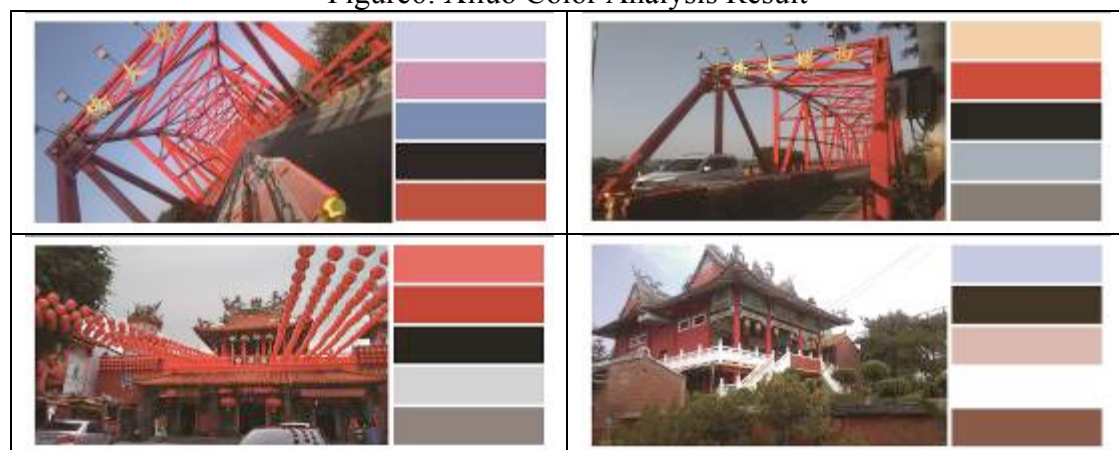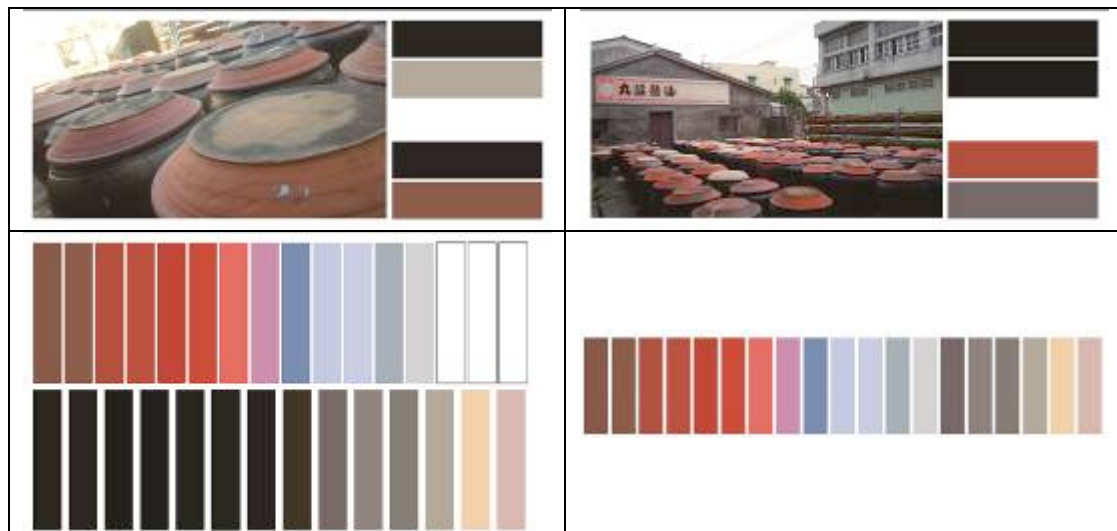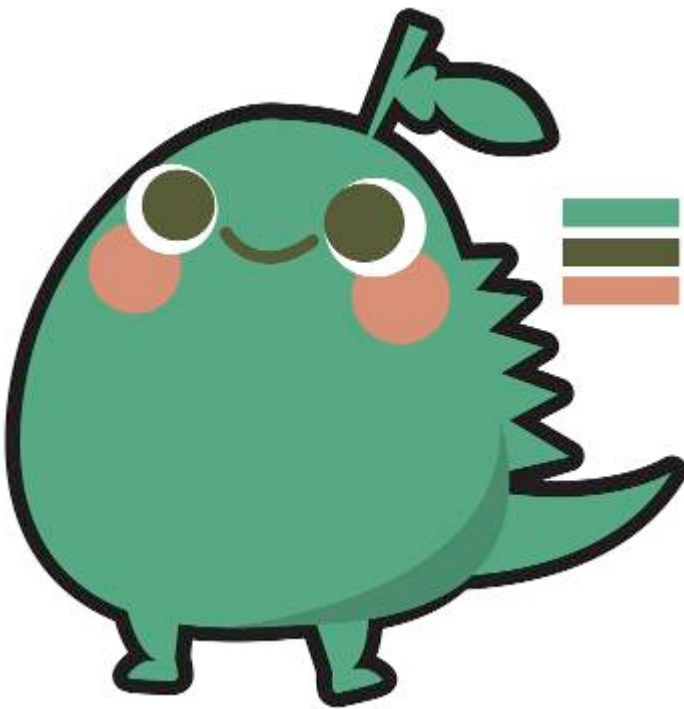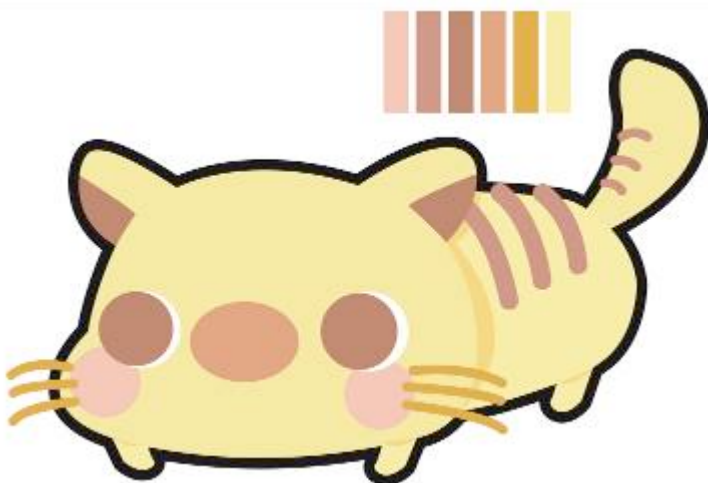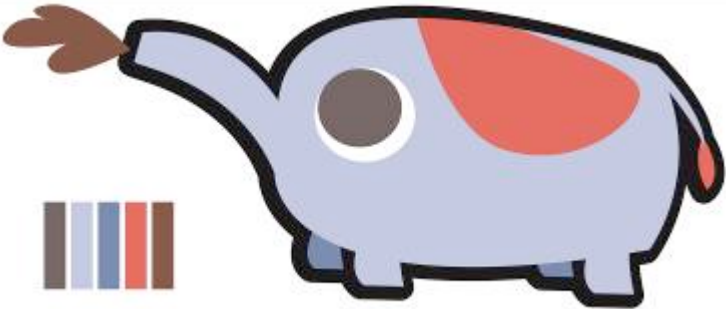
Figure7: Huwei Color Analysis Result
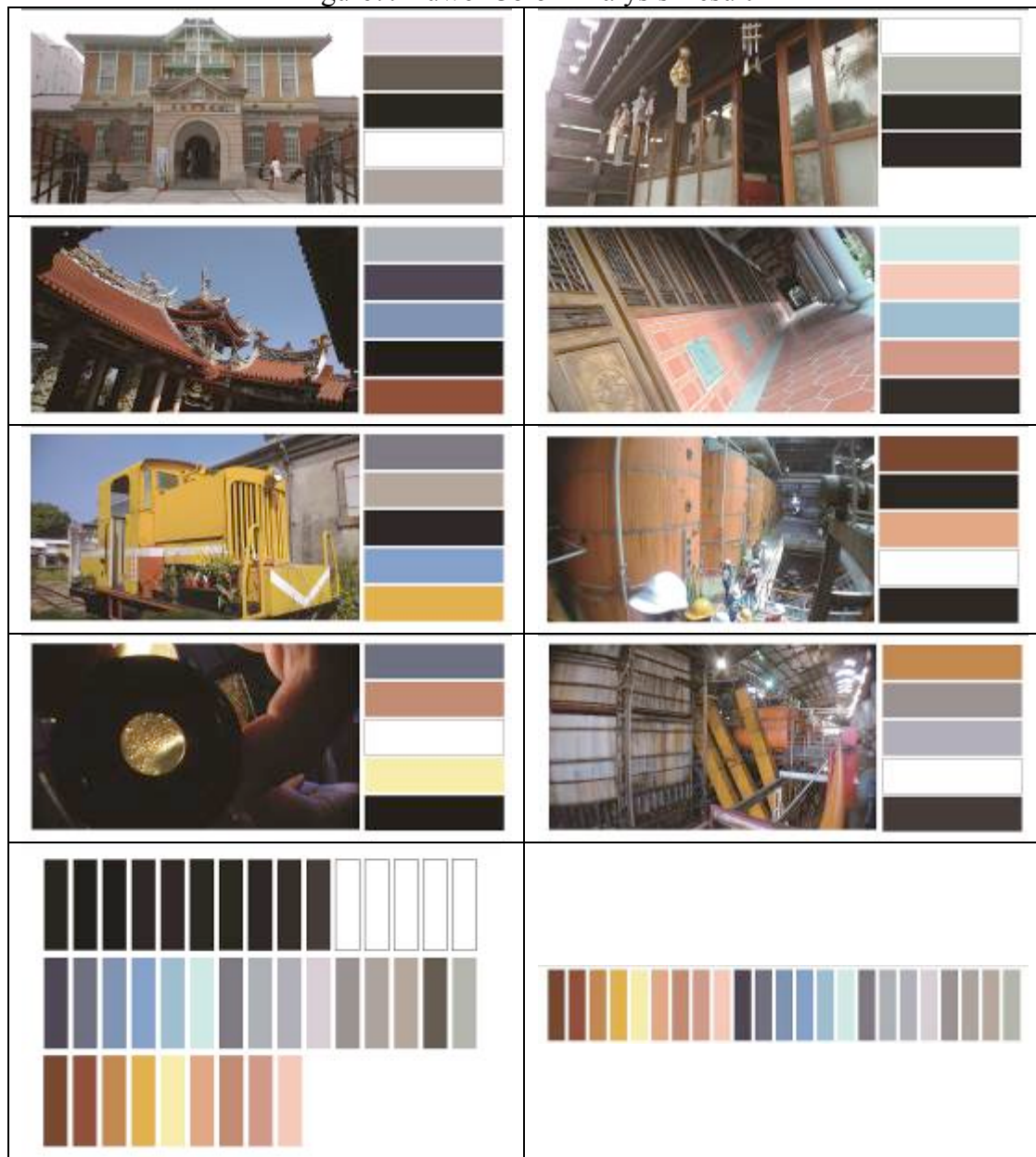
4-4 Design Result

Figure8: Mascot Properties

Township	Douliu
Chapter Name	Wun dan dan
Design Elements	Douliu Color、Wendangrapefruit、Dinosaur、Oval、Triangle
Prototype design	
Township	**Huwei**
Chapter Name	Sugar Tiger
Design Elements	Huwei Color、Tiger
Prototype design	
Township	**Xiluo**

Chapter Name	Soy phant
Design Elements	Xiluo Color、Soy Sauce、Elephant
Prototype design	

Conclusion and Suggestions

This research through Secondary Qualitative Study and Semi-structured Interview, obtain comfort townships mascot's design elements, through the design elements make design prototype .In Online Survey Questionnaire. There is a different between people been to Yunlin county and their impression of Yunlin county. Even 7.4 %'s people have no impression of all townships in Yunlin County. Because townships Features are not Highlighted, makes visitors have no impression, even though they visited the township. Researcher make a table of comfort elements and mascot design, result are all positive things. Cute mascot can improve publicity and fix tourism's problem in marketing, also raise everyone's image of Yunlin county .Next research will focus on comfort mascot's evaluate, Correct it, and use this way to design comfort mascot for other townships.

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Case Study on the Organizational Structure Design Based on Technological Innovation Platform of Core Enterprises within the Distributed Innovation Networks

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Abstract
Research from a variety of perspectives has argued that technological innovation no longer takes place within a single organization, but rather is across multiple institutions or firms within a distributed network. This paper only discusses one kind of the distributed innovation networks that the ones have a core enterprise as the innovation platform provider. This study focuses on the organizational structure and its mechanism for the core companies to ensure and accelerate technological innovation within the distributed network. The methodology adopted in this study is case study. A diversified transnational firm is chosen to be the objective of this study, which is a high-tech in Asia and a core enterprise of a distributed innovation network across the world. This paper considers the nature, organs and their effects of the organizational structure for the innovation platform of the core enterprise. From this, we contrast and analyze the sources, motivation and connection of external innovation, and thereby provide a framework for the organizational structure design of the core enterprises of the distributed innovation networks.

Keywords: organizational structure, technological innovation, core enterprise, distributed network

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Introduction

There is an extensive literature around the theme of distributed innovation. Within a distributed innovation network, a variety of business agglomerations with different objectives, technological background, culture and approaches (Markusen, 1996; Iammarino and McCann, 2006). The researchers within the domain of distributed innovation challenge the vertically integrated model and its argument of innovation created and commercialized within a single company (Bogers, West, 2012).

Distributed innovation is the extension and deepening of technological innovation theory (Liu Guoxin, et al., 2010). The idea of distributed innovation embodies the cross hierarchy of enterprise innovation mechanism (Coombs & Metcalfe, 2002). The internal and external members, distributed in different geographical locations, cooperate with each other and implement the innovations on concept, task or program. Therefore the enterprises can integrate internal and external knowledge more efficient and effective, so to improve the innovation performance (Bowden, 2005). Distributed Innovation emphases on the acquisition and integration of different knowledge geographically distributed. The core enterprise itself or with their network partners works on innovative activities, based on shared resources in different areas of the innovation on the basis of a common network platform. These innovative activities are implemented in different regions simultaneously, and have collaborative and resource sharing features. The organizational structure of the core enterprise should promote the distributed innovative activities both within and outside the organization (Liu Guoxin, 2010). Therefore, what kind of organizational structure that the core enterprise needs to design to integrate the innovation achievement of the whole network and to promote the innovation performance of the network should be discussed, which is also the focus of this study.

Methodology

The methodology adopted in this study is multiple case studies. A diversified firm has been chosen to be the objective of this research, which is SS Electro-Mechanics. The major level of analysis has been at the business level, since at this level the innovative activities of this firm have been taken and the comparative materials would be available. The technological innovation processes of the business of MLCC, LED and ISM of this firm have been chosen to be the cases for study. The reasons on the research objective and cases choosing are as follows.

(I)The phenomenon of innovation could generally be found in the technological development processes of the most developing countries or areas, past or present, such as America, Japan after World War II, South Korea, Singapore, Taiwan and so on. Actually not all the technological innovation strategies have been successful. Some failed. SS Electro-Mechanics is one of the successful firms under technological innovation strategy in South Korea. Choosing it to be the research objective could more effectively ensure the validity and reliability of this study.

(II) The technological development processes of SS Electro-Mechanics including these three businesses have typically demonstrated the path of distributed innovation. This firm has built up a worldwide innovation network, and as the core of this

network, it has an efficient and effective organizational structure to implement and coordinate the distributed innovation.

Conclusion

The organizational structure of an enterprise is in line with its strategy. As the core enterprise of a distributed innovation network, its strategy must make the innovation activities forward-looking and have a global vision. Therefore its organizational structure should be designed under these strategic demands. The MLCC, LED and ISM business of SS Electro-Mechanics shares a great similarity in organizational structure, since they belong to the same company. Therefore, the following analysis will be more from the company level to analyze its common organizational structure.

Incremental innovation and radical innovation

The incremental improvements made by distributed innovators to each other's technology – often in the context of a radical innovation that is being refined to become useful (Nuvolari, 2004; Bogers, West, 2012). The organizational structure of the core enterprise should help the common innovation platform to build the direct collaboration in cumulative innovation and also the radical innovation of the network partners.

The technological organizational structure of SS Electro-Mechanics

The study shows that the technical organizational structure of SS Electro-Mechanic solves the organizational structure dilemma of incremental innovation and radical innovation. The Central Research Institute of SS Electro-Mechanic undertakes the most tasks of radical innovation, and the Technical Section and Technology Institute of each business unit undertakes the task of incremental innovation. In this organizational model, enterprises can better take into account both incremental innovation and radical innovation. And all these departments have direct connection with the corresponding departments of their network partners. They share both incremental innovation and radical innovation achievements and undertake some joint R&D programs. This multi-level organizational structure of technological innovation has a significant role in promoting the technological performance of enterprises. SS Electro-Mechanics set up a Technological Headquarter to manage and coordinate the whole organizational structure.

Department	Content	orientation	Current research area
Technical Section and of each business unit	Ensure the quality of production and improvement of production process	Improvement of existing process to ensure the technical capabilities of current products	Technical improvement and upgrade of corresponding products
Technology Institute of each business unit	Optimize the company's production lines and processes, develop unique core processes / equipment, and	Provide strong guarantee on the field production capacity to ensure the company's strong production capacity	Develop activities on process/line design to reduce manufacturing costs and increase production efficiency; develop differentiated

	establish a unique production system		core production processes
Central Research Institute	Develop advanced technology and new products for high tech electronic components	The driving force for the future development of enterprises, and ensure the enterprises gain a favorable position in the future competition	Take Materials Science, Optics and Photoelectricity as the core technologies, and develop the advanced technology and new products of high-tech components.

Table1 Content and orientation of technical organizational structure of SS Electro-Mechanics

Finally, technological organizational structure of SS Electro-Mechanics is a good solution to the problem of current technological improvement and the long-term technological reserves in the development of the technological capabilities of the enterprise, and integrating the inside and outside part of the distributed innovation achievements. The Technology Institute of each business unit undertakes the current technological improvement to ensure the current competitive advantage; the Central Research Institute of the enterprise integrates the technology of all the business units and makes the technical reserves, and laid a good foundation for the enterprise to win in the future competition. At the same time, the cross- organizational links between the inner technical organizations and corresponding departments of the other network partners also ensure the implementation of distributed innovation.

Acknowledgements

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Street Light Management System Repairs: A Case of the Maintenance and Repair Office, the Kinmen County Government

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Abstract

The Kinmen County has a total of approximately 15,000 street lights. Because of the countless types of street light equipment information, that such information is updated periodically, and that information pertaining to the building and maintenance of street lights in different times is difficult to preserve, control, and access, related departments often spend considerable time to find relevant maps and information prior to sending out their maintenance personnel. Because of the significant number and types of street lights used in the Kinmen County, this study administered a general investigation on the locations, quantities, types, and forms of the street lights to archive relevant basic databases, compile. street light numbers and codes, and establish a street light repair system. The objective was to use such an information system to quickly repair street lights and adopt the system concepts to build complete information standards as well as provide the public and related agencies with a convenient repair and maintenance management system. In addition, the said system can be used to conduct relevant operational planning and statistical analyses.

Keywords: Wireless Communication Technology, LED Lighting

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Introduction

Nowadays, with the continual progress of science and technology and the constant development of material and lighting technology, lighting technology has a radpid development from the vacuum tube to fluorescent lamp and LED technology. Therefore, its application level is wider and wider on mobile device, traffic lights, TV and so on.

LED lighting technology was applied to public lighting systems:

(1) effectively energy-saving lighting management system:after the start of public lighting system at night, the brightness can be changed according to the change of season and weather. And at night, the unnecessary lighting behaviour can also be adjusted in the less-people areas to reduce waste of electric energy.

(2)the analysis mechanism of fault detection: a set of fault detection analysis mechanism is put into public lighting system. When a lamp goes wrong, the system will notify the fault by detecting the voltage / current value, and the maintenance personnel may immediately go to the maintenance station to repair it when they learn that the lamp is out of order.

(3) systematic analysis of the reliability of lighting management systems: event state definition and system analysis of public lighting system meet the expected impacts of events and improve system reliability.

With time passed by, communications technology continues to grow rapidly   from wired communications to wireless technologies.Wireless communications technologies range from short distances (RFID) to medium short distances (ZigBee, Bluetooth), communications, and even long distances communication technologies,which includes GPRS, WiFi, 3G, LTE and so on, have been widely used in entertainment, control and consumption and other functions. The transmission content of them can include text messages, voice and multimedia information.The ZigBee device returns LED lighting parameters and control the status of LED lighting , and then sends the sensing information to the clouder server to process and analyze through the 3G/4G router. Setting the parameters for each lamp through wireless communication technology, not only can reduce the function to control more lighting equipment energy consumption, but also promote the high reliability LED lighting equipment by systematic analysis ,the necessity to reduce the human resources field inspection lamp.
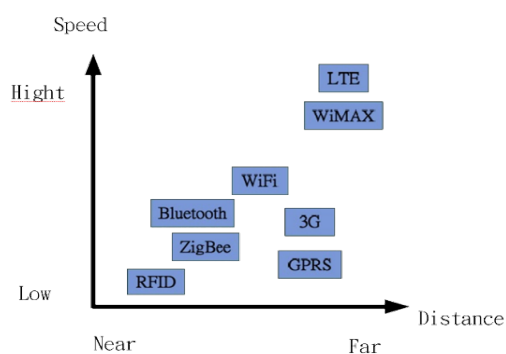
Figure1 . Conceptual Framework

System function

lamp monitoring function part:

1.the wireless communication technology can be used to set the parameters of the lamps and the relevant information about the use of the lamps.

2.monitoring system must have browser, web pages, Web, base to provide Chinese operations, man-machine interface for use, operators through the Internet remote monitoring, access to field meter data and management.
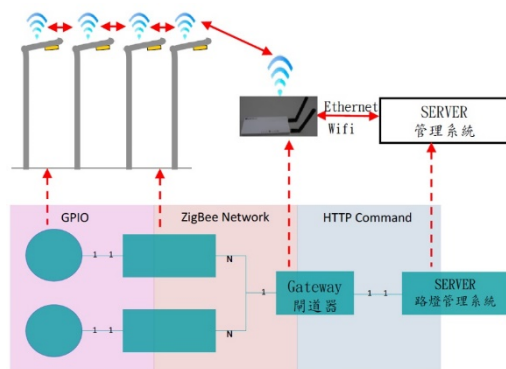
Figure2．System Function
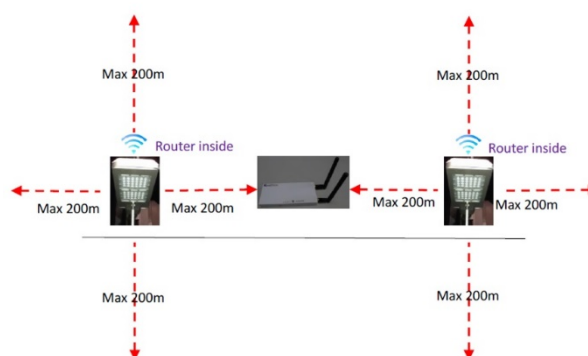
Figure3. Zigbee Transmission Range

The ideal of the maximum transmission distance of ZIGBEE data transmission diagram is 200 meters. However, he is very susceptible to interference, is best able to set point open, stable connection.

Research hypothesis

This study takes the people in Kinmen as an example and makes the following hypotheses:

H1: there is a positive correlation between the number of Kinmen people and their willingness to use.
H2 and H3: digital information, its use interface and rewards have moderating effects on the use intention.
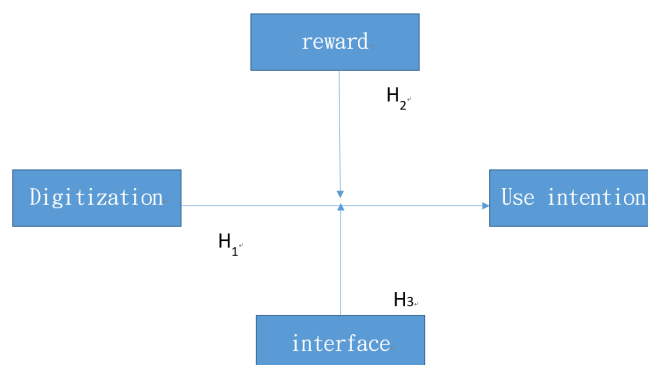
Figure4.Research Architecture

Research methods:

The subjects were people in Kinmen.

In order to make the sampling samples more evenly distributed and to improve their estimation accuracy, the subsequent analysis of each layer of messages is carried out.

The proportion of stratified convenience sampling, fill in answer to provide online questionnaire site for the respondents, the questionnaire is expected to recover 500 copies

Research framework

This is the architecture of my research.
Is it possible to use system digitization to influence users' wishes and to use incentives and interfaces as interference variables?

Conclusion(Expected Results**)**

System performance: the system by digital data, the query / action network via online management, packet using system function (packet) for transmitting and receiving judgment lamp without failure, greatly reduce the human cost of inspection.

Statistics: the number of maintenance, the use of electricity, the use of materials such as cross contrast analysis, to identify the light body material is bad or other aspects of the line defects, improve the proper rate.

When the public feels more convenient and simplifies the failure repair system and additional rewards, it is more willing to inform them voluntarily.

The advice of future research orientation

In the future, if you can set up temperature and light sensors on your lighting equipment, and even routers to increase the clock circuit, you should enhance the efficiency of cloud lighting management system for more complete monitoring. On the basis of LED lighting equipment of high working temperature, reducing the output current to reduce the occurrence of LED color problem caused by overheating of lighting equipment.
The nearby illumination of LED lighting equipment can automatically control the brightness of lighting equipment by environmental sensitization, which makes the system more automated
Combining with the police, fire and other units of the notification system, the disaster can be transmitted by street light coordinates to receive and rescue easily.

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The Study of Marketing Strategy from Traditional Industries:
The Case of Handmade Plain Misua Industry in Kinmen

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Abstract
Plain misua evolved from traditional Chinese pasta. Since the ancestors' era, it has been one of the most important food ingredients used for ceremonies of long-life and birthday greetings, temple's worship, as well as the local street foods. The plain misua is one of the most local products of Kinmen county. Early inhabitants have ground their own flour to produce plain misua. Nowadays, there are still several handmade plain misua factories clustered together, which has become the characteristic of local industry. Moreover, there are several ancient plain misua factories in the Kinmen area, who have accepted the concept of marketing and transformed to tourism factories. Their experiential marketing schemes are widely praised by visitors. This study focus on marketing strategy for local plain misua industry , with a comparative analysis on marketing schemes adopted by local tourism factories. Techniques including visiting interview in depth, and questionnaire survey. By analyzing the results from the survey and to compare it with the impacts of marketing strategy adopted by local tourism factories, this report provides recommendations for traditional industries marketing strategy; furthermore, to predict how to maximize the marketing effects of traditional industries under the expectation of its competitive advantages and more importantly to create a new brand value.

Keywords: Traditional industries, marketing mix, plain misua industry

Motivation

Misua evolved from traditional Chinese pasta. The misua is one of the most local products of Kinmen county. Marketing budget is insufficient due to the small scale of production for traditional practitioners. So, the tourist factory after transformation often impacts the small traditional market of handmade misua, so traditional practitioners is facing the market atrophy crisis and sales are affected. This study mainly discusses how traditional practitioners of Kinmen increase sales and market share through marketing strategies.

Introduction

Kinmen is one of islands in Taiwan, which is located beside Mainland China. The total area of Kinmen is 150 square kilometers.

First of all, I would like to introduce the sales profile of traditional practitioners of handmade misua, and local residents are main marketing objects. Due to less operating capital and small production scale, some practitioners fail to set a special sales store, but conduct production and sales in a domestic factory. And advertising and marketing are ignored, so the total sales and operating income are less.

In contrast, the tourist factory of handmade misua in Kinmen has a unique sightseeing theme. It not only can show the factory environment after landscaping, but also can provide product process visit, equipment display, experience facilities and other services, showing a wealth of industry knowledge and culture. So, consumers can directly see the manufacturing process of handmade misua, have a deep understanding of the industry, and cook and eat handmade misua in the field. Marketing objects are not limited to the local residents, but include tourists to Kinmen.

Research purposes

This study focuses on marketing strategies of the traditional misua industry, and how practitioners increase its competitive advantages and even create new brand value impacted by the sightseeing factory. Within the research scope of online word of mouth marketing strategies, the author explores ways to increase the marketing effect and puts forward some suggestions for reference by interview and questionnaire survey.

Literature Review

Tourist factory is combining establishment, producing department and experience of operate management as resources of tourism.

According to the Study on the Development of the Featured Products for a Tourism Factory 2012, it is regarding to a kind of extraordinary complex tourism for attracting tourist. Attracting them come for visiting, interviewing, investigating and learning through practice.

Based on literature review, traditional industries are mainly labor-intensive, manufacturing-oriented, mostly mass-produced and are gradually being replaced by new products in terms of industrial processes. Emerging industries generally appear after mature traditional industries, and some recession or transformation will occur with the development of new industries.

Buttle (1998) clearly states that word of mouth can also be spread by electronic bulletin boards in the network in addition to face-to-face spoken spread. And objects of word of mouth can be the brand, goods, entire organization, etc.

Hennig-Thurau et al. (2004) defines the online word of mouth (on-line WOM or eWOM) as a potential or actual customer's positive or negative opinion to a product or company via the Internet, based on the literature on the development of on-line WOM.

Word-of-mouth marketing refers to the oral, book or electronic communication of people who have received policy benefits or have practical experience to the reader, including the traditional word of mouth and the online word of mouth. (Kotler and Keller, 2009)

Research methods

The research methods in this case include case interviews and questionnaires, which are described as follows:

1. Case study

Interview with the person in charge of the traditional façade industry, to understand the operators in the management of the concept and marketing strategy application, to obtain the primary information, in addition to increase the credibility of the study, but also provide relevant business continued to operate the proposal.

2. Questionnaire survey

In this study, a questionnaire survey is conducted on consumers of Kinmen and foreign tourists. The interviewer makes clear the identity and purpose, and asks the respondents to self-fill. If the respondents have any questions, the interviewer should explain them, so as to understand the consumer's acceptance and make the results more objective.

Preliminary Results and suggestion

After study, it is concluded that practitioners can use on-line WOM to effectively enhance the brand and visibility for enhancing sales. For word of mouth marketing of the network and community, channels are diversified and low - cost, and contents are diversified and unique, so it is optional marketing strategy for traditional practitioners. In addition, by establishment of official websites or community groups, such as official blog or Facebook fan groups, practitioners can not only convey the industry history and brand information, but also maintain customer relations, so maximum publicity will be achieved. Practitioners can make the marketing strategy by referring

to study results, in order to play the greatest effect of industrial marketing and to create new brand value.

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Risk Management and Profit-Loss Analysis of Foreign Currency Risks During Low-Interest-Rate Periods: A Case Study of NTD/NZD

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Abstract
In recent years, central banks in many countries have adopted quantitative easing monetary policy which induces lower-interest-rates; Take Taiwan as an example, Currently the interest rates for short-term (one year or shorter) time-deposits range from 0.1%~1%. Yet, foreign banks offer short-term deposits with interest rates between 1%~5% which greatly welcome by investors. The drawback for foreign currency deposits is the greatly fluctuated exchange rates. In the past, foreign exchange hedging related literature used the majority of foreign exchange contracts and foreign exchange options for the hedging strategy of the NT dollar against the US dollar, with less research taking financial returns and exchange risk aversion into account. This study aims to explore how enterprises use their short-term funds to buy New Zealand dollar (NZD) time deposits, considering both the possibility of profits and the avoidance of fluctuated exchange rate risks. This result reveals that buying NZD time deposits fixed with USD index futures is an excellent hedging way for enterprises to use their funds in a more flexible way, considering profits and risk avoidance.

Keywords: Quantitative easing, NZD time deposit, foreign exchange hedging, US dollar index futures

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Introduction

This paper explores to buy a higher interest rate New Zealand dollar (NZD) deposits and USD Index futures as a hedge and to analysis enterprises can use their funds in a more flexible way considering profits and risk avoidance.

Since American subprime crisis on 08 years, Federal Reserve Board has continued to adopt the quantitative easing policy (referred QE) three times of buying assets to stabilize the financial market. The size of assets from 90 billion US dollars only expanded to more than 3 trillion dollars, from September 2008 the collapse of Lehman Brothers to January 23 2013 (Central Bank, Taiwan, 2013) (see Figure 1).

source: US Board of Governors of the Federal Reserve System
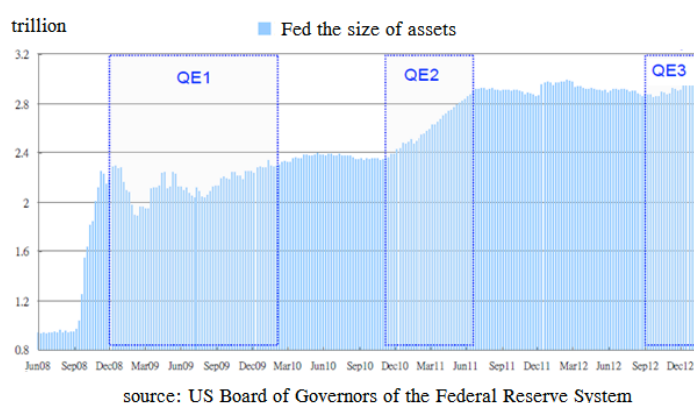
Figure 1: QE policy to expand the size of the Fed assets

Central banks adopt a quantitative easing monetary policy leading to lower interest rates; given Taiwan for example, short-term (one or less) time deposit interest rates for a long time ranges from 0.1% to 1% (see Figure 2).
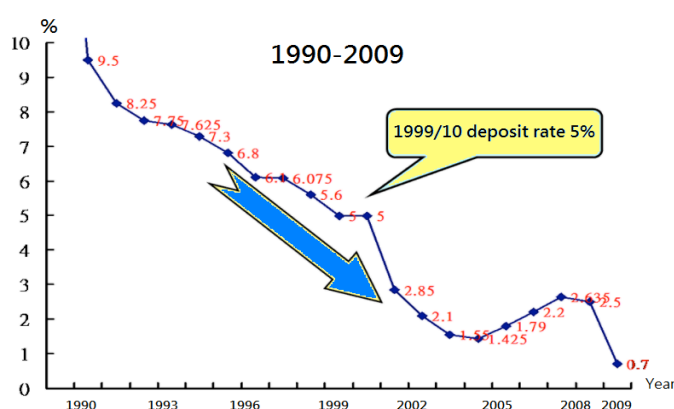
Figure 2: TAIWAN Bank deposit interest rate, Central Bank, Taiwan.

Some foreign banks in Taiwan offer foreign currency short-term deposit rates between 1% and 5%, especially in the NZD and Australian dollar (AUD) interest rates are very popular with investors (see Figure 3).
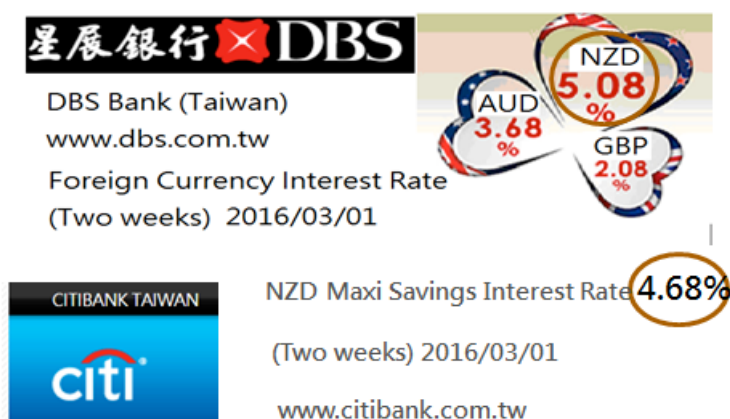
Figure 3: Foreign exchange deposits interest rates in 2016

USD Index

The USD index includes Euro (EUR) 57.6%, Japanese yen (JPY) 13.6%, Pound sterling (GBP) 11.9%, Canadian dollar (CAD) 9.1%, Swedish krona (SEK) 4.2%, Swiss franc (CHF) 3.6%. This is the formula to calculate USD index (see Figure 4).

USD Index

《Calculation formula》

$$USDX = 50.14348112 \times \left(\frac{EUR}{USD}\right)^{-0.576} \times \left(\frac{USD}{JPY}\right)^{0.136} \times \left(\frac{GBP}{USD}\right)^{-0.119} \times \left(\frac{USD}{CAD}\right)^{0.091} \times \left(\frac{USD}{SEK}\right)^{0.042} \times \left(\frac{USD}{CHF}\right)^{0.036}$$

(The constant, currently equal to 50.14348112, was set back at the initiation of the index in March 1973, in order to make the index equal to 100.00 at that time.)
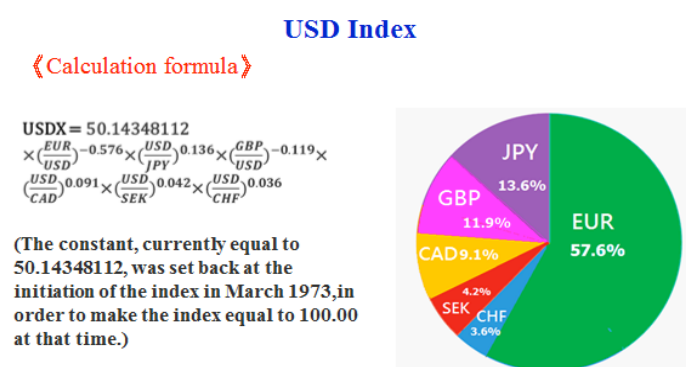
Figure 4: USD Index Calculation formula, wiki.

The US dollar index started in March 1973, soon after the dismantling of the Bretton Woods system. At its start, the value of the US Dollar Index was 100.000. It has since traded as high as 164.7200 in February 1985, and as low as 70.698 on March 16, 2008 (wiki).
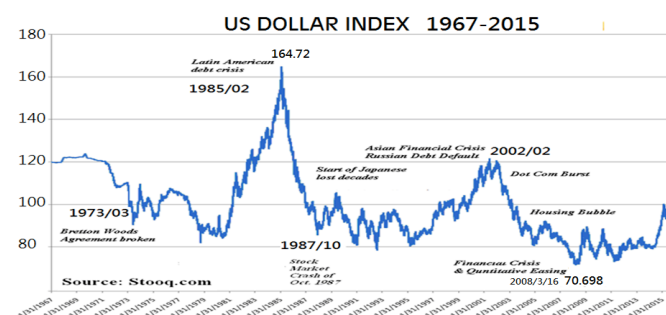
Figure 5: USD Index trend from 1967 to 2015 (wiki).

USD Index futures

The USD index futures are the USD index for the subject matter of the transaction futures, the Exchange for the US New York Board of Trade (NTBOT) (see Table 1).

Table 1: DX contract specifications (CONCORD).

USD Index futures contract specifications and margin

Name of exchange	Product name	Code	Transaction hour (summer/Taipei)	Trading month
NYBOT	USD INDEX (USDX)	DX	08:00~05:00(Monday) 06:00~05:00	3.6.9.12

Contract specifications	Quotation unit	Mini beating unit The total value of each contract	Original margin	Maintain the margin
USD1,000 *Index	USD1,000 /point	USDX 0.005 USD 5	USD 1,980	USD 1,800

Methods

This study using the traditional 1:1 hedge ("Naïve hedge") and based on the analysis of SPSS correlation, estimates the number of USD index futures contracts and calculates the investment profits and losses of each commodity. We were collected the NZD and US dollar index futures information from 4 January, 2008 to December 31, 2016. The closing price of each commodity for a total of 471 pen (week) to analyze the relevant historical exchange rate (see Table 2).

Table 2: Source and During the Study Period

	USD/NTD	NZD/NTD	USD INDEX FUTURE
Source	http://www.cbc.gov.tw/	CONCORDFUTURES	CONCORDFUTURES
During the study period	2008/1/4~2016/12/31	2008/1/4~2016/12/31	2008/1/4~2016/12/31
Number of samples (week)	471	471	471

Analysis

The biggest risk of holding foreign currency is the exchange rate risk. The NZD is a commodity currency. The so-called commodity currency refers to the country's commodity resources are closely related to the currency. Such as Australia, Canada, New Zealand are rich in coal, iron ore, oil, so when the mineral prices and oil prices rose, the exchange rate will be boosted accordingly. Commodity currencies are generally the first to strengthen in the economic recovery, because the economic recovery means that the demand for goods increased, thus driving the commodity exporting countries economy.

Accordingly we collecting all the necessary data for the study, we used the SPSS analysis methods to analyze the data. The correlation coefficient of NZD for DX is minus 0.337 (see Table 3 & Table 4).

Table 4: NZD & DX Correlation coefficient

Descriptive statistics			
	Average	standard deviation	N.
NZD/NTD	23.04552	1.720164	471
DX	83.8037	7.73813	471

Table 3: NZD & DX Descriptive statistics

Correlation coefficient		
	NZD/NTD	USD INDEX
NZD/NTD	1.0000	-0.337
USD INDEX	-	1.0000

Results and Conclusion

The study is a relatively investment of USD 200,000 to buy NZD time deposit. The interest rate is calculated at 3% of the lower interest rate of the foreign bank. The maximum and minimum average of USD index futures (DX) during the study period was 86.628, using the traditional 1:1 hedge ("Naïve hedge"), and the other buy 6 contract DX as a hedge instrument. The total investment is USD 211,180 (see Figure 6).

2008/1/4 ~2016/12/31

DX=70.94~102.286=>average=86.628

200,000/(86.628*1,000)/0.337=6.85

Buy 6 contract USD index futures

Original margin=1,980*6=11,880

Total amount of investment

USD→NZD	6＊DX	Total
US$ 200,000 →NZ$ 261,194 (Time deposits)	US$ 1,980＊6 =US$ 11,880 (Margin)	US$ 200,000 +US$ 11,880 =US$ 211,880
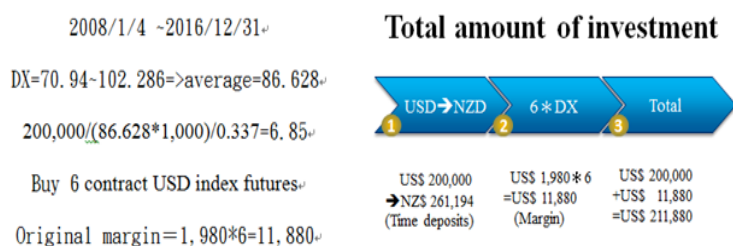
Figure 6: Total amount of investment

Total profit and Rate of return 2008/01~2016/12: The USD Index future profit is US$158,076 and the rate of return is 74.85%; Interest is US$51,766 and the rate of return is 24.51%; The NZD loss is US$ 51,766 and the rate of return is 24.51%; Total profit is US$191,974 and the rate of return is 90.82% (see Figure 7-9).

US$ 200,000+DX*6(US$ 11,180) Profit (or Loss)

NZD profit $ -49,247	NZD profit $ 6,976	NZD profit $ 10,354		
Interest 4,523	Interest 5,858	Interest 6,394		
DX profit 36,270	DX profit 6,060	DX profit -4,650		
Total $ -8,454	Total $ 18,894	Total $ 12,098		
Rate of return -4.00%	Rate of return 8.95%	Rate of return 5.73%		

| 2008 | 2009 | 2010 | 2011 | 2012 |

NZD profit $ 37,530	NZD profit $ 7,531	
Interest 5,648	Interest 6,084	
DX profit -22,110	DX profit 7,500	
Total $ 21,068	Total $ 21,115	
Rate of return 9.98%	Rate of return 10%	

Figure 7: NZD & DX Profit (or Loss) 2008~2012

US$ 200,000+DX*6(US$ 11,180) Profit (or Loss)

NZD profit $ -282	NZD profit $ -24,602	NZD profit $ -18,048
Interest 6,386	Interest 5,338	Interest 51,766
DX profit 4,518	DX profit 50,610	DX profit 158,076
Total $ 10,622	Total $ 31,346	Total $ 191,794
Rate of return 5.03%	Rate of return 14.84%	Rate of return 90.82%

| 2013 | 2014 | 2015 | 2016 | Total |

NZD profit $ -10,323	NZD profit $ 4,015
Interest 6,076	Interest 5,459
DX profit 58,632	DX profit 21,246
Total $ 54,385	Total $ 30,720
Rate of return 25.75%	Rate of return 14.55%

Figure 8: NZD & DX Profit (or Loss) 2013~2016

$ 158,076 /$211,180=74.85%

$ 51,766 /$211,180=24.51%

$ -18,048 /$211,180 = -8.55%

2008~2016 Total Profit $ 191,794/ /$211,180=90.82%
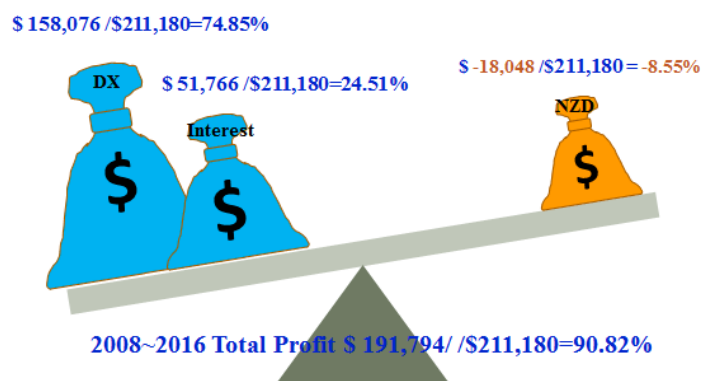
Figure 9: Total Profit

This result reveals that buying NZD time deposits fixed with USD index futures is an excellent hedging decision for enterprises to use their funds in a more flexible way considering profits and risk avoidance.

Suggestions for Future Study

Because our research period is after financial crisis, many central banks have adopted quantitative easing monetary policy leading to long-term low interest rates, the USD index is also in the low-grade areas; therefore, we suggest that the future research

direction can be in different foreign currencies or different periods, with the USD index futures as a research object, observe whether the conclusion is consistent with this study.

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From the Battlefield to the Tourist Attraction -- Investigating the Changes of Paternalistic Style of Leadership in Kinmen

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Abstract
On an offshore island of Kinmen, where intensive artillery fire from across the Strait had rained and there remains a sharp look of place of battle, was stationed by troops of nearly a hundred thousand men at a beginning stage. Owing to the commodity and monetary control by the Government, more commodities were needed than supplied, and the commodity prices were set by vendors freely; that was an incentive strong enough for almost every local house to become a shop. Each of those small shops was individually run by a family. Then, after the number of troops became smaller and smaller in the context of mitigated political tension across the Strait after the lift of martial law, tourists follow. They keep coming to see this place that was once a battlefield and to feel the local culture shaped by and survives warfare. There are many enterprises from Taiwan introducing modern business modes to Kinmen, and impact these shops are operation with traditional way. The owners of the local traditional enterprises run predominantly in paternalistic style of leadership, including leading by kindness, by moral and by authoritarianism. We thus conducted questionnaire survey, targeting the businesses in Kinmen, also employed secondary data gathering, to investigate the paternalistic style of leadership in the small and medium businesses there. The findings hereof will assist Kinmen's business leaders in making their decisions in leadership and serve as references in increasing business performances.

Keywords: Kinmen, small and medium enterprises, paternalistic style of leadership

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Motivation and background

On an offshore island of Kinmen, where intensive artillery fire from across the Taiwanese Strait used to rain and remained a sharp look of battlefield, was stationed by troops of nearly a hundred thousand men at a beginning stage. Owing to the commodity and monetary control by the Government, the demand of commodities was greater than supply. Thus, the commodity prices were set by vendors freely, which served as an incentive strong enough for almost every local house to become a shop. Each of these small shops was individually run by a family. Later, the number of troops became smaller and smaller in the context of mitigated political tension across the Taiwanese Strait after the lift of martial law; and then tourists follow. They keep coming to see this place which was once a battlefield and to feel the local culture shaped by and survived from warfare.

Introduction

Kinmen is an island between Taiwan and China. It has 150 square kilometers. Kinmen is famous for Kinmen Kaoliang Liquor, Kòng-thŋg...and all kinds of specialties.

Research purposes

There are many enterprises from Taiwan, which introduced modern business modes to Kinmen and further impacted these shops that were run in traditional way.

The picture in the left is the street of the Yang Zhai . There are many old school buildings with traditional Min-Nan culturale style .And in the right is a modernized Cafe shop in recent years.

•To investigate the paternalistic style of leadership in the small and medium businesses in Kinmen.
•The findings hereof will assist Kinmen's business leaders in making their decisions in leadership and serve as references in increasing business performances.

Literature Review

Small and medium enterprises

Countries have different standards for the definition of small and medium-sized enterprises—Various criterions for industry characteristics

Dhawan(2001) investigated the different performance characteristics   between large and small enterprises. The derivation of the theory showed that enterprises of different sizes are heterogeneous. Small enterprises have higher profit rate, lower survival probability and difficulties to enter the capital market. The study pointed out that small businesses, comparing to large firms, are more productive but may undergo higher risks.

Paternalistic style of leadership

Paternalistic leadership, which combines strong discipline and authority with fatherly benevolence and moral integrity couched in a 'personalistic' atmosphere, has been found to be prevalent in overseas Chinese family businesses. After critically reviewing the extant literature, we identify three constituent elements of paternalistic leadership (PL): authoritarianism, benevolence, and moral leadership. Authoritarian leadership refers to leader behaviors that assert absolute authority and control over subordinates and demand unquestionable obedience from subordinates. Benevolent leadership refers to leader behaviors that demonstrate individualized, holistic concerns for subordinates' personal or family well-being. Moral leadership may be depicted as leader behaviors that demonstrate superior personal virtues or qualities that provide legitimacy as well as arouse identification and respect from subordinates for the leader.

Chinese paternalistic leadership in the eastern cultural background is quite effective. However, paternalistic leadership behavior includes Authoritarian leadership, Benevolent leadership and moral leadership three leadership behavior. The core value of management method is" Temper justice with mercy" .For Enterprise, to explore the following factors: Whether employees feel alive, willing to sacrifice, and do all attention on the work.

Leadership of authoritarianism

Leaders emphasize that the authority is absolute and cannot be challenged. The subordinates are tightly controlled and are required to obey without reservation.

Leadership of benevolence

Leaders should take long-term care of the well-being of their subordinates and build up comprehensive relationships with them individually.

Leadership of moral

Leaders must show a higher morality of personal conduct or accomplishment in order to win the admiration of subordinates, and further allow subordinates to follow the example. The most prominent are non-favoritism and leading by example.

Method

Research methods include questionnaire.
I will be on the Kinmen local industry questionnaire and test, hope through the actual data to analyze and get results. The scale adopted Likert 5 points scale measure.

Prospective Results

Early times, due to the war situation, Kinmen-an outlying island of Taiwan- had stationed for hundreds of thousands of troops. As a result, market demand is greater than supply, and this embedded local stores the power to lead the market price.

After the lifting of the Martial Law, tourists became the main group of customers. Outer enterprises entered Kinmen and brought in the modernized operation model. However, most traditional stores of Kinmen remained their original operating style.

Local businessmen of Kinmen should adapt the evolution of the times by ways of leadership changes and amending the mode of operation from time to time. So that they may not be eliminated by new emerged businesses.

Recommendations for Future Research

Combine battlefield and modern styles as the inspiration for the change of operation mode.
Guide employees through amending the way of leadership.
Coordinate with government policies to attract tourists and keep updated with trends.

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Resilient Living Environments: Identifying a Design Approach to Creating Housing Suited to Culture and Context

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Abstract
This paper's focus is on identifying a system for devising and implementing a culture and context specific planning and design approach to creating the right low cost housing solutions for mitigating the effects of floods and flood related disasters. Two sites will be explored, one in Kundasale, Sri Lanka and the other in Nanjing, China. The paper first identifies key issues leading to unsuitable developments that exacerbate the natural phenomenon of flooding. It then presents the culture and context specific approach for each location. While one takes a more direct design practice focused approach, the other takes a more theoretical and academic approach. Each approach is defined by the designer's own cultural background, knowledge, and understanding of the local context, culture and people. The intention of this comparison is to highlight the uniqueness of each contextual situation and the significance of having a specific solution, appropriate to site, and driven with awareness of the designer's own limitations and strengths. A robust planning and design guideline will act as a checklist for designers, while for community stakeholders it is a means of ensuring development projects are culturally and contextually suited and sustainable, and aligned with international policy recommendations for disaster risk reduction, building resilient communities and reducing vulnerability to poverty.

Keywords: Resilience, Flood, Disaster, Housing, Adaptable Design

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Introduction

The occurrence of floods, the most frequent of all natural disasters, has increased exponentially since the 1970s (Jha, 2012, p.19). This has meant a significant rise in flood related disasters resulting in an increase in the number of people affected and the cost of flood damage. In 2010, a year of severe flooding, 178 million people worldwide were affected incurring losses of over US$40 billion (Jha, 2012, p.19). The highest fatalities related to flooding are from emerging nations, and particularly from amongst the poor and socially disadvantaged segments of society (Jha, 2012, p.20). The major contributing factors to this problem in addition to the rapid growth of urban communities is construction techniques that are inappropriate and insensitive to natural phenomenon and hazards, the alarming decrease in impermeable surfaces, and the lack of forward looking infrastructure to support and sustain the environment and communities and mitigate the effects of the resulting floods as population growth takes place (Berman, 2010, Parkinson, 2005; Shaw, 2016;).

Today, disaster risk reduction and building resilience to disasters is a priority for national and international development and economic organisations, and is written into policy at both levels with the focus of achieving this at grass roots level. The United Nations World Conference on Disaster Reduction in Sendai in 2015 and its 1994 and 2005 predecessors, the efforts of The Global Facility for Disaster Reduction and Recovery, and the multiple guidelines published for policy makers and stakeholders by the World Bank on the topic demonstrate the ongoing urgency of this issue and the commitment to address it at a global level. In 2015 a commitment was made by state representatives at the Sendai World Conference to act 'with a renewed sense of urgency within the context of sustainable development and poverty eradication, and to integrate, as appropriate, both disaster risk reduction and the building of resilience into policies, plans, programmes and budgets at all levels and to consider both within relevant frameworks' (UNISDR, 2015, p.9).

Problem

While these commitments demonstrate the urgent need to prioritise the issue of disaster risk reduction in a sustainable manner in all development and poverty eradication agendas (UNISDR, 2015), rarely is disaster risk reduction implemented to an extent that achieves the long term results desired. More often than not policies fail to filter down to stakeholders working at community level or are ignored at the planning, design, and construction levels by developers, funding bodies, planners, and designers, particularly in post disaster situations. Additionally, the governing bodies established to monitor the design and implementation of development projects, such as urban and local councils may fail to take account of these well-meaning policies. Much of the reason for this, particularly in the emerging world, seems to stem from the lack of accountability amongst stakeholders (Sanghi , 2010), coupled with a lack of understanding of the significance of these policies and in-depth knowledge backed by education on sustainable building methods, materials and practices. Sometimes there is also a lack of moral commitment amongst stakeholders that prevents the materialisation of policy aims; this may be informed by their focus on short term outcomes and personal gains rather than the long term greater good (Sanghi, 2010) . In addition most vulnerable communities are unaware of the existence of such policies at either international or local government levels or of policy intentions which are

aimed at benefitting them and their communities, primarily by ensuring their wellbeing. Hence vulnerable communities are easily exploited by developments intended to benefit them in the short and long term but that fail to do either.

Impacting this situation further is the transplanting of westernised generic development approaches and models on vernacular communities (Oliver 1992; De Sylva 2011). A common scenario and one privileged by governments in a disaster situation is to abandon the affected site and relocate communities to new developments (Oliver, 1992; Oliver-Smith, 1992; De Sylva, 2011). The community preferred (Oliver-Smith, 1992; Quarantelli, 1985a, 1998b; De Sylva 2008), and often the sustainable solution from a social, psychological, economic and environmental sustainability point of view (Brown, 1992; Oliver, 1992; Oliver-Smith, 1992; Quarantelli, 1985a, 1985b; Riad, 1996; Steinglass, 1990; De Sylva, 2008, 2011) is to redevelop damaged sites utilising creative and contextually appropriate infrastructure and innovative building techniques to mitigate or minimise the risks from future disasters. An issue often overlooked by policy developers at national and international levels and engineering and architecture professionals is that every new development has the potential to exacerbate a natural hazard and contribute to future disasters. This situation has resulted in the World Bank in the last seven years proactively producing post disaster development handbooks (Jha, 2010) and operational guidance for disaster risk management (Jha, 2012), not only for policy makers but also for nongovernment organisations, the private sector, project managers and concerned community members (Jha, 2010, 2012).

Potential Solutions

Innovative and safe solutions combined with culturally and contextually suited development methods are capable of supporting and sustaining communities in adverse situations, particularly in terms of safeguarding lives and livelihoods and facilitating a quicker recovery (Berman, 2010; De Sylva, 2011; Oliver, 1992 ; Zbigniew, 2002). In some situations traditional or vernacular infrastructure solutions and non-westernised attitudes to occupying an environment prove far more effective and sustainable, and must be given greater consideration rather than being dismissed as primitive, unsafe or temporary (De Sylva, 2008, 2011; Oliver, 1992; Sanghi 2010; Zbigniew). Berman (2010) reflecting on westernised attitudes to land and water and modern infrastructure developments, following Hurricane Katrina, states 'we have come to realize that our highly orchestrated, static levee flood control systems, intent on constraining and neutralizing the environmental fluctuation impacting our cities, have also been partially responsible for unintentionally amplifying urban and ecological risks'. Since 2005 Berman (2010) has advocated for a more fluid geographical approach to these two natural elements, a concept potentially applicable to most traditional riverine and coastal communities.

A case in point are the traditional communities that have lived for generations in homes built on stilts up to 6m high and in vertically floating environments in the flood zones of the Tonle Sap Lake in Cambodia (Grundy-Warr, 2016; Morris, 2014). This lake floods extensively annually and is inundated with flood water most of the year. Having over time established a way of building and living on water these communities depend on the flood for the rich benefits it offers for food sourcing and livelihoods (Grundy-Warr, 2016; Morris, 2014). This is a response to a natural hazard

clearly at odds with more westernised attitudes, for as Berman (2010) points out 'in the western design realm, infrastructure tends to barricade society from the uncertainty of the nature of water'. This preventive rather than adaptive approach to flood and the effects of climate change is increasingly contributing more large-scale infrastructure constructions like static sea walls, dams and levees (Berman, 2010) and is behind relocation of communities to higher ground by developing new sites. In turn, these contribute to deforestation, reduction of permeable surfaces, ground instability and flooding. This flawed thinking justified as reducing risk to disaster and vulnerability to poverty is a short term view, but is exploited by local politicians and developers who advocate forced relocations and redevelop unstable sites for commercial gains (Cornea, 2004; Oliver-Smith, 2009). Several studies on the Tonle Sap Lake communities and the Meekong River which partially feeds annual Tonle Sap Lake flood bring attention to the potential dangers posed by built infrastructure developments like hydraulic dams and commercially oriented projects to the sustainability of the lake environment. This includes the ecology of the flood zone, the wellbeing of traditional riverine communities, the negative impact on food sources and food production and likely increase in tropical diseases (Grundy-Warr, 2016; Morris, 2014 ; Zeigler, 2013).

Methodology

This paper is based on the first author's experience of dealing with stakeholders in housing developments ranging from urban councils, planning and design professionals, to corporate sector funders, and the knowledge gained from research into post disaster development projects that have failed to adhere to international sustainable development agendas and policy. Having researched the implications of these failures on communities, it is necessary to both question how policies can be translated and applied in practice more effectively and to identify a means of ensuring accountability at multiple stakeholder levels to ensure suitable developments. As a potential solution there seems value in developing a planning and design guide for ensuring effective translation of policy and its creative application in practice. The intention being to maintain commitment to the Sendai Framework (UNISDR, 2015) and further the efforts of the World Bank to improve the quality of post disaster developments (Jha, 2010) and better manage flood risks and disaster (Jha, 2012). Such a guide must to be designed so when used by funding agencies, developers, planners and designers of development projects, it acts as a project monitoring method for stakeholders, including local communities. As such the intention of the research is to identifying through case study projects a system for developing a robust and universal design guide which can be tested further and analysed for viability against project goals.

Hence the key question driving this research project is can a universal design guide produce culture and context specific designs for large scale community and housing developments? Essential to this research but beyond the scope of this paper are related questions such as the robustness and transferability of the system or planning and design process, and the possible shortcomings of a universal design guide. Would a regional design guide be more appropriate? How can the benefits of a design guide in terms of its suitability for culture and context and meeting policy aims be measured?

As an initial step two case study projects located in the unique cultural and contextual environments of Sri Lanka and China were analysed. Focused on disaster risk reduction and building resilience the goal of each project was to contribute to the body of research on community development, increasing resilience to disaster and poverty and sustainable development and as such they align with the goals of this project. This was a necessary criterion for potential case study projects used in the analysis.

The design process followed in each project is based on the contextual knowledge and experience of the designer. Having first identified limitations in existing knowledge planning and design processes were altered to fill gaps in knowledge so as to achieve a comprehensive and contextually suited design outcome. The research involved comprehensive study in order to understand culture and context, the histories of relevant traditional and vernacular building techniques, local responses to past disasters, and analysis of current rebuilding trends and the impact of these on communities. In addition contemporary and innovative technological solutions and systems were identified and analysed for suitability and adaptability to local conditions. Design processes and outcomes have only been tested within the design studio and have not been presented for community feedback and analysis. However each process is based on knowledge gained from the analysis of previous post disaster redevelopment projects, and research findings from studies conducted across several different sites that involved both community interviews and empirical studies.

Case Study Projects

Project One: Architect's Approach

Background: Sri Lanka's vulnerability to regular floods and droughts present the most significant threat to the long term development and progress of the country. As a small island nation located in the Indian Ocean, Sri Lanka is exposed to two monsoonal periods of high rainfall. The extreme effects of climate change have contributed to an increase in rainfall and more severe flooding in most parts of the country. Aggravating this situation and contributing to the disastrous outcomes of the flooding is the extensive urban and rural development, unsuitable, insufficient and inefficient infrastructure, deforestation, cutting of hillsides, mining of riverbeds and increasing populations. From 2000-2010 flooding cumulatively affected over 8.5 million people. The most recent destructive flooding and landslides occurred in May 2016 with over 301,000 people affected across 22 of the 25 Districts in the country. More than 128,000 houses were impacted with over 30,000 needing repair or reconstruction. In addition over 25,000 businesses were impacted.

Problem 1: Because of government policy and the availability of donor organisation funding, the rebuilding of homes and communities after a disaster often involves the relocation of affected families and entire communities to locations perceived as safe (Cernea, 2004; Oliver-Smith, 1992, 2009). Rarely do post disaster developments focus on the reoccupation of a disaster damaged site through its rehabilitation and that of its surrounding context, by improvements and innovations in infrastructure and building techniques to prevent exacerbation of future floods or minimise damage from these. New and relocation sites are usually developed using planning techniques, building methods and materials that lack adequate consideration for the flood

mitigation infrastructure needed to safeguard against future disasters (De Sylva, 2011; Zbigniew, 2002). Often insensitive to contextual conditions these developments compromise the land and safety of surrounding communities thereby increasing the susceptibility of multiple communities and even entire regions to future disasters (Sanghi, 2010; Zbigniew, 2002). Given the ongoing issue of widespread clearing of forests and agricultural land for development and relocation of displaced people, this is often not a sustainable solution.

Problem 2: With increased urbanisation both Sri Lanka's major cities and smaller rural towns have grown significantly, with suburbs rapidly springing up on any surrounding land available for human occupation. Often forests, hillsides, agricultural lands, paddy fields and wetlands are claimed for housing with no consideration for the environmental impacts of development. Without infrastructure to ensure permeability, drainage and ground stabilisation as part of sustaining the rapid growth of cities and towns, and with the ongoing loss of wetlands, the natural 'sponges' of the land, surface flooding as well as the flooding of rivers, canals and drainage systems is a serious and growing issue.

Project: The brief was for the development of 2-3 bedroom homes and community facilities for public servants on an 11 acre peri-urban site in Kundasale, in the hill capital district of Kandy. The approach is an architectural practice approach directed by the designer's familiarity with local cultural needs and practices, knowledge of contextual conditions and topography, architectural traditions, availability of material resources and a personal drive for a sustainable architectural solution.

Project Aims, Site and Context: Located on a hillside the developer's aim was for maximum housing numbers while the designer's aim was to minimise the contribution of the development to future flooding, landslides or similar potential disasters, while remaining suitable for the needs of the community at socio-cultural, economic and environmental levels and creating the framework for a self-sufficient community. Formerly farming land belonging to the government, the site sloped down to paddy fields that linked up with others to create a valley of gradually terraced fields stretching out for a vast distance. These fields were irrigated by natural waterways and streams that flowed down to the valley where they linked up to form a substantial feeder to the river several kilometres away. These waterways, streams and river sustain not just the paddy fields but other types of cultivation, livestock, industries, wildlife, flora, and also supply water for bathing, washing, and cooking to neighbouring communities and those further downstream, as well as being used for hydro power. Preventing contamination of this water and not exceeding the holding capacity of these waterways and ultimately the river was another high priority.

Design Aim: An architecture that treads lightly on the land was the driving concept of the project. This was seen as a way to maintain minimum impact on the environment, with its natural terrain and natural resources. While the choice of construction materials, methods and architectural design and detailing was aligned with this concept, when it came to mitigating the short and long term effects of a large development on the site, neighbouring sites and the wider local environment the ideas translated into a carefully considered plan for housing, landscape and infrastructure. The latter drew knowledge from environmental design disciplines such as architecture, landscape architecture, urban design, and civil and services engineering.

Design Solution: Maintaining the natural porosity and permeability of the ground and preventing the inundation of the land meant identifying methods for collecting, controlling, filtering, treating and recycling water and careful consideration of the finishes for ground surface treatment of roads, walkways, carparks and play areas. Respecting the natural terrain meant minimum cutting and terracing of the hilly site. This led to the design of low rise terraced buildings that appeared to float and were supported by foundations that trod lightly on the land. Community gardens at ground, rooftop and in between levels and green belts, parks and gardens woven through built areas served multiple functions including food production and sustaining natural ground conditions. Treatment of blackwater and greywater on site was a key design priority. Ecological engineering and landscaping were a significant focus of the project's design and detailing.

Project Two: Theoretical Approach

Background: The increased danger of flooding within China and the effect of this on river-related infrastructure and poor riverine communities suggests a need for new urban typologies and innovative adaptable solutions. Positioned on the expansive Yangtze River Delta, the city of Nanjing encompasses a complex mix of historical reverence and progressive tendencies, which encourage experimental approaches, including design for coping with flooding. The aim is to provide a safe, adaptable and affordable response to recurrent flooding, through in depth historical, cultural and philosophical analysis of the social, spiritual and architectural landscape within China as a whole, and in Nanjing. Although Nanjing remains the central focus of the research, the intention is develop design concepts and solutions that could be abstracted and applied across similar cultures and environmental conditions within Asia, and even beyond.

Problem 1: Barbara Chabrowe (1974) highlights western views of architecture as a solely permanent construct and its separation, even if unintentionally, from all the construction and structural oeuvres by non-western cultures. This tendency toward marginalisation of architectural traditions has excluded the ephemeral constructions of most vernacular communities and non-western cultures, and continues to dominate current approaches to development and housing in non-western nations. Hence the ongoing replacement of ephemeral vernacular architectural solutions such as the floating homes or stilt houses of the Tonle Sap communities discussed earlier in the paper with permanent and static developments which are mostly unsustainable.

Problem 2: The inherent cultural divergence between the designer and the project's client community required approaching disaster mitigation design using a binary research framework. While western pedagogy is predicated on the quantifiable and calculable, with a particular emphasis on the physical, non-western cultural traditions consist of explorations into the intangible, such as the principals of Feng Shui, and seeks to generate physical causality from its application. These differing approaches are inextricably linked to the various aspects explored in this work, and are therefore necessary for achieving a holistic understanding and rationalisation of the overarching situation within the site and the discipline of architecture. Understanding the complex systems that inform living environments and unifying their respective applications

generates a cohesive exploration into the incorporation of culture and vernacular agency into 'resilient' and adaptive design.

Problem 3: The 1931 flood along the Yangtze River Delta exemplifies the extreme outcomes of heavily industrialized river edges and isolation of communities by flood waters. The annual catastrophic flooding of this highly polluted river during monsoon periods, further aggravated by expanding urban development continues to afflict riverine settlements severely even today. Due to the extensiveness of the flooding and the high levels of flood water a primary concern for endangered communities, in addition to health, damage to property and infrastructure, is that of connection. During flood disaster situations, entire groups become isolated from one another and most significantly from all forms of infrastructure and services. Large-scale cities, such as those within China (Nanjing) are incapable of supplying the necessities of all affected inhabitants, and therefore, the solution resides within smaller formal and informal community groups to devise solutions for mitigating the effects of floods and organise relief (Maki, 2008).

Project: The project has two development stages. The first is an architectural solution to reducing the effects of flood disaster on vulnerable communities and devise a culturally and environmentally suited economical solution to housing for the poor. The second takes a more theoretical look at the notion of the city as a growing organism increasingly affected by climate change, and particularly flooding. The latter, therefore, incorporates practical discussion of the former but seeks to expand on the idea of informal communities, with priority given to self-organisation.

Project Aims, Site and Context: The project aim was for a practical and immediate solution to both problems, lack of safe and affordable housing and increasing susceptibility to flooding. The test site for the project is a low income informal development in Nanjing that sits on the water's edge of the Yangtze River

Design Aim: Having recognised the dangers of the site, the aim was to embraces the challenges it presents by devising a solution that adapts to the changing environmental conditions and needs of its low income occupants with the intention of reducing risk to disaster and reducing poverty. The design aim was to create a modular unit that can be self-built and adapted to individual needs as a house, store, shop, workshop, or garden and to meet community requirements. The second stage of design development aimed at identifying a potential design solution to urban population increase, increasing urban poverty, shortage of housing and land for development, and safety from increasing flood incidents.

Design Solution: Designed respecting traditional Chinese culture and construction techniques and systems, the units respond to the availability of material resources locally and construction knowledge and building techniques of local communities. Due to the inconsistent nature of the Yangtze River, the modular unit works in the wet and dry season. Informed by amphibious communities that reside largely on the water and floating homes, the modular units were designed for self-reliance and safety and as they sit on floatable bases which replace traditional foundations they adapt to contextual conditions as flooding Each unit structure is based on the notion of layered simplicity and can be stacked vertically or attached horizontally and combined in this manner to form a larger home, a home and garden, a shop house etc. Constructed

using vernacular materials as timber or bamboo all beams, rafters and supports are adapted from the bracket technique observed in traditional Chinese construction (Ruan, 2006), and require only systematic application when building. At a second and future stage of development the units can come together in a 'Group Form', creating a new informal settlement typology and plug into centralized vertical service cores positioned strategically on the river and linked to land via services infrastructure.

Case Study Discussion

Of the two projects discussed above the one located in a peri-urban site in Kundasale, Sri Lanka is focused on preventing and minimising floods and flood damage both to the development site, neighbouring sites and wider context through considered planning and design of infrastructure. This project highlights the careful consideration required in new developments and the opportunities that exist for preventing or aggravating future flooding. Project two located in Nanjing, China is focused on inhabiting a flood prone urban site where land scarcity forces the poor to the unsafe edges of cities, using a tradition informed modular architectural system. The proposed design enables homeowners to self-source materials, construct a home and adapt it to their changing needs over time. This concept is aimed at enabling the urban poor to build safer homes cheaply and without the involvement of professionals, thereby preventing both unsafe and unsustainable construction as well as the imposition of alien and generic house models by governments and donor organisations. The project also explored a sophisticated and futuristic infrastructure development around a service core where communities could 'plug in' their modular self-built homes and any supportive structures, in a culturally and community appropriate manner. This is also a potential sustainable solution to urban population growth and the issues of urban sprawl and land shortages, and is aimed at minimising the threat to life, and damage to property, food sources and livelihood activities in the event of flooding. These studies also demonstrates how safe, environment friendly, self-supportive and dynamic communities can be encouraged through understanding the culture and needs of people, and the provision of appropriate infrastructure.

Each contextually unique solution demonstrates the dangers of generic 'one solution fits all' development approaches and also presents the principles of adaptive design that can be transferred to other contextual situations. Both projects prioritise a well-considered study on context and culture and developing project appropriate infrastructure.

Design Framework

The aim of this project was to identify at an initial level a system that would inform a design guideline that could become:

a. A checklist for stakeholders involved in community development and design, to ensure sustainable and community culture and context suited outcomes.
b. A method of monitoring community development projects, to ensure they meet international and local policy recommendations and commitments for increasing community resilience to disaster and poverty.

Two culturally and contextually diverse projects were presented and analysed for this purpose and the outcomes compared for further clarification. Three key design criteria were identified from this analysis and these correspond with the key aims of reducing the risk to disaster. These are outlined in table 1:

Table 1: Design Principles (extracted from the case studies)	
Design Criteria	Design Aim
1. Infrastructure development plans informed by site, context, local resources and future site conditions	Minimize flooding and contribution to flooding. If flooding cannot be controlled due to external factors beyond the scope of the design then identify context appropriate design solutions for minimizing its negative effects on environment and community through adaptive solutions
2. Design and detailing of infrastructure based on community culture and context sensitive information	Ensure developments are suited to the socio-cultural and economic needs of communities and focused of safety of human lives, and quick recovery by minimizing damage and disruption to lives, property and infrastructure.
3. Forward looking adaptive infrastructure design solutions	Ensure communities can adapt to changing weather conditions and sustain themselves in periods of flooding and after, leading to provision for multiple sources of community based food production, minimum disruption to livelihoods, means of mobility and accessibility

From table 1 emerges the need for a well-considered and articulated infrastructure, developed with sympathetic awareness, of three design priorities. These are listed in table 2 and essential considerations to ensure suitability of a development to community and context:

Table 2. Design Priorities (extracted from table 1)	
1.	Community culture and needs
2.	Contextual conditions and vernacular systems
3.	Innovative, adaptive and environment sensitive design

The projects explored in this paper point towards the development of infrastructure that is justifiable at multiple levels but starting at the 'grassroots' level of community and context and then working outward. This should be the case for all types of development projects, particularly if they are focused on dealing with floods through eliminating or reducing vulnerability, minimising damage, and increasing resilience to future flooding and flood related disasters.

The design solutions developed in each case study project responded to some or all of the criteria listed in table 3 that could constitute the 'grassroots' level of a community and contextually appropriate design project, criteria essential to ensure suitability of a development to community and context:

Table 3. 'Grassroots' Level Design Criteria	
1.	Vernacular practices, solutions and materials
2.	Local communities, cultures and livelihoods
3.	Contextual conditions, environment and climate
4.	Local building histories and traditions
5.	Cost effective solutions utilising local practices, knowledge and skills
6.	Economic sustainability (align projects towards a community's capacity to build, maintain, expand and repair itself)
7.	Local capacity building (utilising and retaining local skills, knowledge and practices)
8.	Reducing the negative impact of development (on site, environment and communities)
In addition the projects also aimed to ensure community resilience and sustenance in the event of a future disaster by focusing on:	
9.	Increasing capacity on site for food production, clean water, and safe sewerage disposal
10.	Safeguarding livelihood sources
11.	Increasing livelihood opportunities and economic progress within the community

As can be observed, only the first point is to do with building whereas the second and third points are to do with community building. This shows the difference with conventional community building and relocation approaches which only deal with buildings. As the projects demonstrate if a project responds to the criteria listed above it is likely to offer a more culture and context specific design solution. It is through the constant reinforcing of local culture and context that the dangers of generic solutions and unsuitable developments are avoided.

From the criteria listed in the tables above key characteristics that would be essential for developing a universal yet transferable, adaptable and robust design guideline are given in table 4. However, before establishing these as a system for developing a robust and universal design guide further testing against other case study projects is essential.

Table 4. Key characteristics of a system for developing a design guideline	
1.	adaptable to different contextual situations
2.	adaptable to different cultures
3.	justifiable at micro and macro levels
4.	justifiable socio-culturally, economically and environmentally
5.	adaptable to future disasters

Discussion and Justification for a Design Guideline

Development projects for vulnerable communities are dictated by tight budgets and short timeframes and are mostly implemented after the damaging effects of a disaster when the need for rehabilitation through reconstruction is at its most urgent. In these situations little opportunity exists for well researched solutions involving affected communities in the planning and design processes.. This is also a time when resources are stretched, inflation affects construction costs, and when quality assurance becomes

a challenge. Development projects in these situations follow typical approaches. However such projects rarely work in the short or long term for the benefit of communities or to prevent future disasters. Relocation displaces people from familiar living environments, livelihood opportunities and social structures and has been proven to have long term psychological effects on both economic and physical recovery after a disaster (Oliver, 1992; Quarantelli, 1985). Further aggravating this situation is the culturally and contextually unsuitable infrastructure that often results from rapid developments. Poor planning increases the vulnerability of communities to future environmental, social and economic disasters and defeats the purpose of development and global policies and funding support aiming for disaster risk reduction and poverty eradication.

Identifying the right solutions for the redevelopment of communities is an immense challenge (Parkinson, 2005; Shaw, 2016), particularly when developers are unfamiliar with the complex factors contributing to flooding, the intricacies that inform a community's culture and livelihood practices, and the environments they are dealing with. This is often the case in emerging nations after a disaster when governments, international and national donor organisations engage in redevelopment, and where the guidelines and methods for disaster risk reduction and increasing resilience to disaster and poverty are not clearly understood and adapted to each community and context. In these situations a design guide with clearly identified criteria, established on prior research into communities, could be a valuable tool. Such an outline for design development and project evaluation has the potential to mitigate or reduce the negative effects of post disaster developments. However, such design guidelines need to be considered carefully to avoid the potential dangers of contributing towards a 'one model fits all' concept.

Conclusion

Without comprehensive education of the general public and stakeholders on the topic of 'floods' and 'sustainability', and the significance of each for continued human life on earth, nothing can be achieved. Due to this widespread lack of education the terms 'disaster mitigation' and 'sustainable inhabitation' remain mere rhetoric and far too often are naively translated. The result is development projects failing to achieve the outcomes desired by international policies. In emerging nations this situation is worsened by the lack of accountability and transparency at various stakeholder levels, so vulnerable communities continue to be plagued with development projects that exacerbate their situation further.

What becomes evident from the projects presented in this paper is the need for well-considered infrastructure design to prevent and reduce the incidents of floods and flood damage, and to ensure community resilience and continuity of life, food production and livelihood activities without significant disruption in periods of flooding. Cost effective solutions that utilise vernacular systems and the traditional knowledge of local communities are essential. When such approaches are coupled with innovative adaptive systems and creative environment friendly planning focused on coping with floods and increasing resilience, effective and sustainable solutions can emerge. A well-considered universal design guide is perhaps an essential, urgent solution to the problem of unsustainable development and natural hazard related disasters.

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A Research on the Relationships among Role Pressure, Personality Traits, and Job Satisfaction-Personnel Employees : An Example of National Universities in Taiwan

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Abstract

The national universities in Taiwan are rather distinctive from the aspects of characteristics, for example, the staff including academic and administrative categories which fit with various compliance systems. Furthermore, Taiwan Governments have been attempting to reform the administrative policies on military and public servants, and to revise the labor-related policies. All the changes have casted severe pressure on personnel employees at national universities. This research aimed to explore the effect of role pressure on job satisfaction, and to examine if personality trait acts as a moderator in-between. We targeted the personnel employees at the 45 national universities in Taiwan and used Linear Regression Analysis to conduct the data analysis. This research contributed in twofold: firstly to suggest the personality traits as effective reference at recruiting employees; secondly, pressure adjustment should be included in the training designs.

Keywords: role pressure, personality traits, job satisfaction, Taiwan

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Introduction

Job satisfaction is a complex concept and can be affected by various factors-physical, psychological, environmental, and so on. In this study, I would like examine the relationships among role pressure, personality traits and job satisfaction. To be specific, I would focus on personnel employees of national universities in Taiwan.

Background and Incentives

According to the Taiwanese Constitution, universities should have the autonomy in various aspects. "National" universities, like other universities, are free to administer the school. However, since national universities are public universities-funded by the government, they are monitored by the government to a certain degree. Thus, national universities in Taiwan are rather distinctive from the aspects of characteristics, especially the diversification of appointment categories for faculty and staff—public servant or private labor. In fact, the staff is separated into academic and administrative categories with various compliance systems to manage these two categories. These complications make the work of personnel employees very complicated. Furthermore, Taiwan Government has been attempting to reform the administrative policies on military and public servants, and also to revise the labor-related policies. All the changes have casted severe pressure on personnel employees of national universities.

Purposes of Research

In this study, first, I would like to understand the level of job satisfaction of personnel employees in national universities and to inspect the effects personality traits have on job satisfaction. Then, I would like to discuss whether there is any intermediary effect of personality traits between work pressure and job satisfaction. Based on the study results, I wish to provide specific recommendations to personnel administrative institutions and related units as references for system and policy improvements.

Literature Review

Personnel Employees

Regarding to personnel employees, Dave Ulrich (1997) believed that the role played by HR professionals should be diversified instead of singularity. HR professionals may play both operating and strategic roles at the same time. They are the guardians and operating partners of policy implementation. Thus, HR professionals must play complex, diversified and sometimes contradictory roles.

丁鳳碧 in 2001 pointed out that the main work of personnel employees is to be responsible for the organization's manpower planning, examination and appointment, comprehension, preferment, training, assessment of rewards and punishments, period of leave, welfare, insurance, retirement, personnel information and other required operations. So the responsibilities of personnel employees are significantly important. However, the role of personnel employees in institutions is contradictory. In one hand, they serve the internal staff and handle all personnel business. On the other hand, they also assess staff's performance. Thus, personnel employees are easily misunderstood. In any institution, personnel employees are the aides for the authority figures. They

should be led by the director of the specific institution. Nevertheless, personnel employees should also follow the orders and instructions from their direct personnel superiors, which may not be the same person as the institution director. When there is any disagreement, institution director may blame the personnel employees for uncooperative, and then misunderstandings occur.

Personality Traits

Allport(1937) thought that personality is what a person being different from other people in thinking and behavior. With time lasting characteristics, personality is a unique psychological system with dynamic combination of genetic, environmental context and other factors which allow the person to adapt the external environment.

Another study by Costa and McCrae- The Five Factor Model-helps to set up the framework of this study (1992). Big Five personality traits, or The Five Factor Model, aka **FFM**，is used to describe the five aspects of personality traits in the most advanced organizational level in modern psychology. These five aspects compose one's main personality characters. The big five are extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience:

- Extraversion is to evaluate the number and intensity of interaction between individuals, the level of activity, the demand of stimulation, and the capacity of happiness. High scorers are optimistic socializers while low scorers are loners with passive attitude.
- Agreeableness refers to assessing the nature of interpersonal orientation of the continuum from sympathy to hostility, in terms of thoughts, feelings and behavior. People with high scores are usually soft-hearted and good-natured, while people with low scores tend to be suspicious and uncooperative.
- Conscientiousness is used to measure the degree of organization, persistence, and dynamism of the individual in target-oriented behavior--comparing reliable and rigorous people with lazy and sloppy ones.
- Neuroticism means to evaluate compliance with emotional instability; to identify those who are prone to psychological distress, unrealistic thoughts, excessive expectation, and adverse reactions. The characteristics of high scorers are emotional and worried, and the low scorers are calm and bold.
- Openness to experience is to actively seek and appreciate the experience itself; accepting and exploring unfamiliar experiences. People with high scores are creative and curious while people with low scores are conventional and down-to-earth.

Job Stress and Job Satisfaction

藍采風 in 1982 said that job stress refers to the characteristics of the working environment causing stress to the individual and making the individual feels that extra effort is needed to keep the balance of mind and body. While Robbins believed that job stress is caused when an individuals is frequently situated in an environment with limited opportunities, and his/her supervisors often require changes regarding important tasks in a dynamic environment.

Taylor (1912) is thought to be the earliest scholar to study job satisfaction. What exactly is job satisfaction? 張春興(1989) gave a brief definition：Job satisfaction refers to the degree to which individuals or most employees are satisfied with their work. It will be affected by factors, such as salary levels, working hours, work environment, the nature of work, promotion opportunities, interrelationships and management practices.

Research Structure

Showing in the chart below, Gender, service years, educational level, marital status, and job contents would be evaluated as the controlled variables; and The relationships among job stress, job satisfaction, and personality traits would be examined.
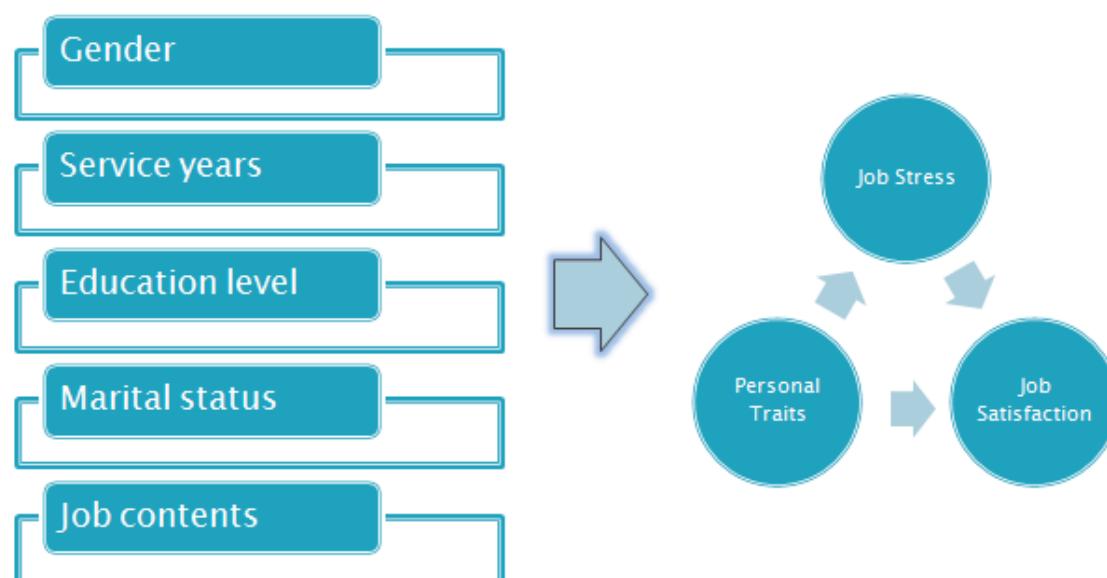
Methodology

For the research methodology, survey would be distributed among current personnel employees in national universities. Questionnaire would be created through Google Form, and webpage link would be sent through social media, such as Line and Facebook. Simple sampling method shall be adopted.

After data collection stage, various statistical techniques would be used to analyze the data. Factor analysis and Reliability tests would be used to check the validity and reliability of the data; descriptive statistics would give a brief overview of the data set; one-way ANOVA and Regression analysis would be used for further examination.

Expected Outcomes

First, personnel employees with different background have distinctive variances among personality traits, job stress, and job satisfaction. Also, personality traits may have negative effect on job stress, while job stress may have negative effect on job satisfaction. Finally, statistical analysis should indicate that personality traits does have some intermediary effect between job stress and job satisfaction.

Suggestion

It is expected that the study result may help generating suggestions to the authorities. For instance, authorities may review and adjust the staffing policy for the hiring of personnel employees; to abolish outdated regulations; and to ensure accessible promotion route. It is hoped that the study may shade some light on progressing the job satisfaction of personnel employees in national universities in Taiwan.

A Framework for e-Health Promotion Plan: health behaviors of University students and their interest in campus health promotion experiential activities

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Abstract

The purpose of this study aimed to provide an assessment of the needs of health promotion in university students, based on body composition analysis reports, lifestyle variables and the interest in health promoting activates. The researcher design and development a systemic approach to guide and process health promotion practice which is an e-Health promoting plan to facilitate the participants to recognize one's body composition analysis reports, and further more to encourage one to join the campus fitness center to sustain their physical fitness in good condition. A framework for e-health promotion plan will be exposed and discussed in this study. The result of this study can provide school-based health care providers to create their own interventions plan to assist students keeping a good lifestyle behavior.

Keywords: e-Health promotion plan, health behaviors, campus health promotion experiential activities

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Introduction

Health is seen as a resource for everyday life, not the objective of living. Everyone can prevent illness if one can take action to maintain one's health behavior. Health promotion is the process of enabling people to increase control over and improve their health and also a strategy for improving the health of a population by providing individuals, groups and communities with tools to increase control over and improve their health. Recently, health promotion issues have moved beyond the traditional treatment of illness and injury by centering its efforts on the social, physical, economic and political factors that goes beyond healthy lifestyles to wellbeing.

Literature Review

Health promotion development from The Ottawa Charter for Health Promotion (1986) can be summarized as the following issues: narrow focus on risk prevention scarcely referring to health promotion, single individual behavior interventions, progress towards a more interdisciplinary and integrative approach and comprehensive approach. According to the Ottawa Charter five action areas for health promotion were identified as: building healthy public policy, creating supportive environments, strengthening community action and developing personal skills. There is evidence of a correlation between adoption of the Ottawa Charter's framework of five action areas and health promotion programmed effectiveness. Research evidence was identified by searching electronic databases from 1998 to 2013 to prove a systematically identify and synthesize factors influencing the phases of WHP interventions: needs assessment, planning, implementation and evaluation. (Fry etc, 2016, Rojatz etc, 2016).

Baum & Fisher (2014) indicated that the increasing rates of chronic conditions have resulted in governments targeting health behavior such as smoking, eating high-fat diets, or physical inactivity known to increase risk for these conditions. A good way to improve personal health status is by persuading individuals to change their health behavior.

Golden & Earp (2012) have been applied social ecological models in to the health promotion interventions by created a coding system to identify the ecological levels that health promotion programs target and then applied this system to 157 intervention articles from the past 20 years of Health Education & Behavior. The results showed that interventions that focused on certain topics (nutrition and physical activity) or occurred in particular settings (schools) more successfully adopted a social ecological approach.

Body Composition Analysis

InBody 570 is an eight point tactile electrode system with thumb electrodes which applies a quantitative value to the various components of the body's composition. It applies a quantitative value to the various components of the body's composition and can be used to understand outputs on all of the InBody body composition results. These values represent the weight of each compositional component that comprises the examinee's total body weight and following six parts information: Body

composition analysis, Muscle-Fat Analysis, Obesity Analysis, Segmental Lean Analysis, ECW/TBW Analysis and Body Composition History.

Body composition analysis included following information: (1) Intracellular Water, Extracellular Water and Total Body Water, (2) Dry Lean Mass: Dry Lean Mass is the total body mass minus the water and the fat mass. (3) Body Fat Mass: Body Fat Mass indicates the total quantity of lipids that can be extracted from fat and all other cells. (4) Lean Body Mass: Lean Body Mass refers to the entire body weight with the exception of Body Fat Mass. (5) Body Weight: Body weight is the total sum of these three components.

Muscle-Fat Analysis included following information: (1) Muscle-Fat Analysis, Weight. (2) Skeletal Muscle Mass and (3) Body Fat Mass.

Obesity Analysis included following information: BMI and Percent Body Fat.
Segmental Lean Analysis included two bar graphs for each body part in the Segmental Lean Analysis graph. The display of the two bar graphs allows for a more effective and informed assessment of the current distribution of the lean mass the examinee has. The two graphs have different meanings, respectively. Results sheet interpretation can be found in the https://www.inbodyusa.com/pages/results-sheet-interpretation.

A Conceptual Framework

Designing a school-based health promoting plan need a holistic approach that includes an e-health interventions plan, a campus fitness center and to empower participants exercise motivation. The goal of e-health interventions plan is to create an interesting training course to empower students' participants. The campus fitness center located in near students activity space and it is opened by appointment through online system. Two student workers are taking in turns to service the students during opening time and to check and maintain the sports equipment in the fitness center. A school-based health promoting plan is shown in the figure 1 below.
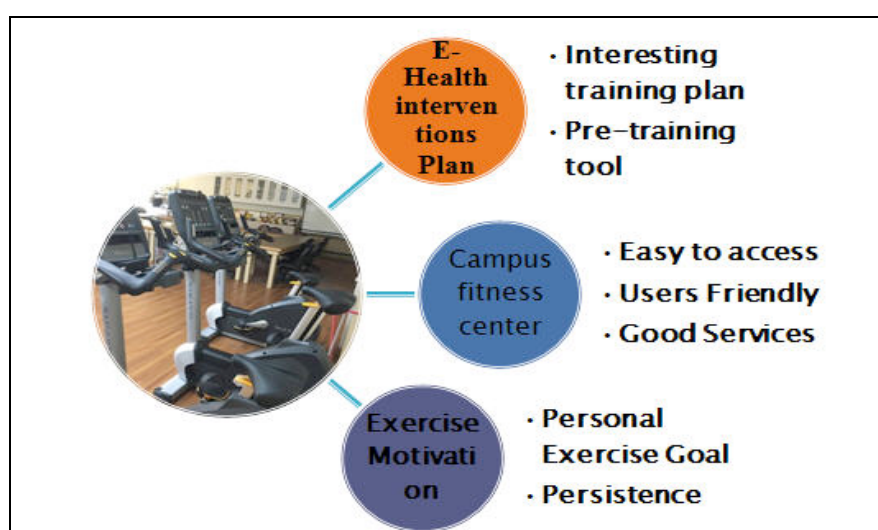
Figure 1: school-based e-Health Promoting Plan

The four stages of e-health interventions plan follow a chronological order in which the previous stage prepares the participants' body and mind in good condition for further processing during the during the following stage. In stage one, participants have to register as an online e-coach system members, only registered members can log in to e-coach system to save personal information, personal body composition analysis results sheets and uploaded personal exercises log. An e-coach system is shown as figure 2 below.

Figure 2: e-coach system

In stage two, participants have to finish body composition analysis (pre-test) and uploaded the full page report to the online system. Stage tree, participants have to keeping exercises during twelve weeks and uploaded personal exercise log to system. Stage four, participants have to finish body composition analysis (post-test) and uploaded the full page report to the online system. A sample body composition analysis sheet is shown as figure 3 below.
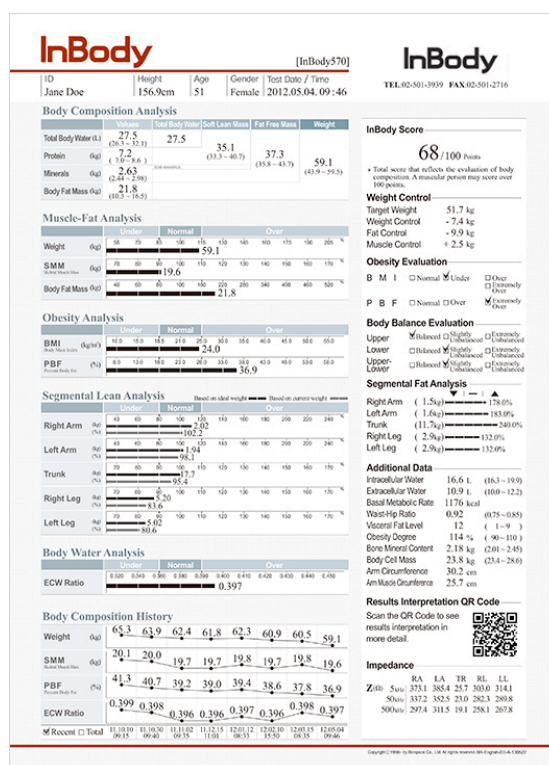
Figure 3: A body composition analysis sheet sample

In stage tree, participants can choice one of exercise plans which included plan A: treadmill training , plan B:flywheel training and plan C:weight training to fit exercise tool in the fitness center and have to register as an online e-coach system members. An e-health intervention plan is shown as figure 4 below.
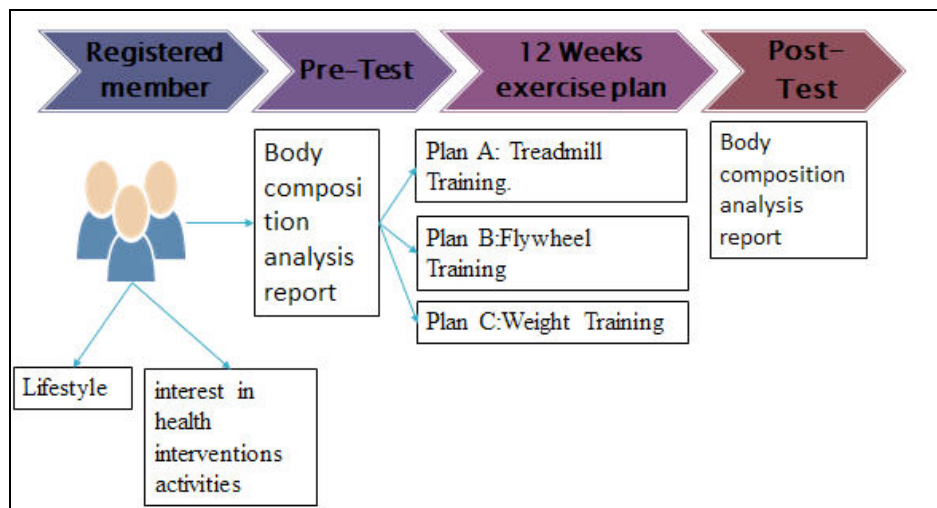
Figure 4: e-Health Intervention Plan

In stage four, participants can examine personal exercise logs and compare the results of two body composition analysis reports during the exercise period. An e-coach personal exercise log is shown as figure 5 below.

Figure 5: e-coach personal exercise log

Conclusion

Health promotion and education is a profession focusing on the behaviors, systems, environments, and policies affecting health at a variety of levels. With the supported of school, the campus fitness center can be set up and serviced to students. In this study, a school-based health promoting framework is created to improving students' understanding of health knowledge and skills and how to apply them for daily life.

Overall, integrated health promotion in the school business included students in the project group and had a supportive and effective principal can speed up the health promotion plan and good practice on the campus.

Acknowledgements

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The Ottawa Charter for Health Promotion (1986)
http://www.who.int/healthpromotion/conferences/previous/ottawa/en/

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A Study on Collaborative Learning Based on Dynamic Group in E-Learning

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Abstract
The purpose of this study will be to explore best practices for online learning communities. The researchers will dynamic learning groups into learning communities by heterogeneous learners, and learners' profiles, learning style, self-directed, autonomous and achievements. The experiment will focus on the development of learning communities through online discussion. The researchers hope that design new e-learning platform to improve students' learning attitude and achievements in vocational school.

Keywords: Online learning communities, Vocational school, Heterogeneous learners

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Introduction

E-learning's dramatic change in information technology (IT) infrastructure has led to fundamental changes in how educations operate and also brought people flexibility, freedom, and equal rights and opportunity to learn. However, not all students could adapt to virtual learning successfully. There are different characters between students in vocational school systems and students in traditional universities in Taiwan. The purpose of this study will be to explore best practices for online learning communities. The systems will dynamic learning groups into learning communities by heterogeneous learners, and learners' profiles, learning style, self-directed, autonomous and achievements. The experiment will focus on the development of learning communities through online discussion. The researchers hope that design new e-learning platform to improve students' learning attitude and achievements in vocational school.

Statement of the Problem

In recent years, e-learning has continued to grow at a tremendous rate in vocational school systems in Taiwan. However, there are different characters between students in vocational school systems and students in traditional universities. General speaking, students' achievements in traditional universities are better than students' in vocational school systems. Students' learning styles cause their barriers to learning, when they take web-based courses. Very few learners have the self-discipline to set their own schedules and complete courses in vocational school systems.

Literature Review

E-learning environments are different from traditional learning environments. Learners need to use different learning strategies, styles, and attitude to fit new learning environments. This section will collect and organize a number of learning styles from the literature. Based on studies of these materials and author' experiences, major factors for students' learning style include (a) Self-directed learning (b) autonomous (c) accept new technology (d) enterprising (e) thinking (Alessi & Trollip, 2001) (f) sharing in order to success in e-learning.

Learning styles

Learning styles refer to the ways people prefer to approach new knowledge or information (Conner, 1993-2005).

Self-directed learning

Howland and Moore (2002) point out that "self-management, self-reliance, and accurate expectations of learner responsibilities are important attributes for successful Internet-based learning experiences" (p. 187).

Autonomous

Drennan, Kennedy, and Pisarski (2005) have discussed "an autonomous learning mode influence student satisfaction with courses presented in a flexible learning mode" (p. 337).

Methodology

E-learning does not fit everyone (Mantyla & Woods, 2001). Learners can learn subjects very well in face-to-face class not mean students can learn in e-learning environments. This purpose of this research was to investigate how to success in E-learning. The authors will design profile and stream systems to monitor the status of heterogeneous learners. The researchers will use a purposeful or random assignment of students to groups in order to produce variety within those groups.

Design Experiment

1. After learners register in a course, the systems will automatically dynamic learning groups into learning communities by learners' profiles.
2. This study will use discussion board to evaluate students' learning output or performances. Learners can rate each other from discussion contents.
3. After three weeks, instructors will check every learning group's output or performances.
4. After six weeks, the systems will combine students' profiles and learning output or performances. The systems will assign learners into different groups again.

Samples

The test will be conducted using students at a southern institution in the Taiwan. The student participants had to have taken more than one Web-based course. Participants in the study will be 40 college students enrolled in a web-based course in the Management Information Systems program at the Far East University in Tainan, Taiwan, R.O.C.

Conclusion

This study is in progress. From this research, the authors want to find out the effects of Web page design with different strategies that are the message area location and the function area location in order to improve Web page design for Web-based courses.

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Towards an Improved Theory of Disruptive Innovation: Evidence from the Personal and Mobile Computing Industries

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Abstract

This research studies the concept of disruptive innovation, its patterns, and the mechanisms that cause it. By using quantitative and qualitative evidence from the personal and mobile computing industries, this research serves to corroborate Clayton Christensen's disruption theory, the main theory proposed today as an explanation of this phenomenon. It identifies the strengths and weakness of the theory, and builds upon it in order to propose an improved theory of disruption. In order to measure disruption in the personal and mobile computing industries this research collected data for 58 product lines, including personal computers and smartphones developed by companies in America, Europe, and Asia from 1974 to 2015. A correlation analysis validated the foundations of Christensen's model, however it also revealed many unexpected results such as the importance of radical innovation and architectural innovation. Further qualitative historical analysis corroborated these results. The main finding of this research was identifying three different types or phases of disruption and proposing an original categorization for them: 1) disruption by creation of a new market, 2) disruption by 'mainstreamization' of the market, and 3) disruption by commoditization of the market. This represents an improvement over the current understanding of the theory from a macro perspective.

Keywords: Innovation, disruption, technology, management, design, new market, commoditization, computing, mobile

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1. Introduction

One key and not often discussed characteristic of Clayton Christensen's theory of disruption is the predictable and methodical manner in which disruption takes places in the market according to it. While the theory acknowledges that the ignition itself of disruption might be unpredictable, once disruption begins entrants disrupt incumbents in a methodical manner that is as much inexorable as it is systematic, at least according to the theory.

In disruption theory parlance, as a market evolves sustaining innovations overshoot customer needs and incumbent companies start over-serving the mainstream market. In turn, these gaps between performance's supply and demand allow for the emergence of disruptive innovations that lower performance, usually introduced by new entrant companies. Once a disruptive innovation takes hold in the low-end of the market, it relentlessly improves its performance and begins to move from the low-end to the high-end of the market, displacing in this process the previous technology and incumbent companies. Incumbents flight, instead of fight, and withdraw to the high-end of the market until they get cornered. Unrelenting, the disruptive innovation and entrant companies capture the mainstream market, and eventually the whole market including the high-end (Christensen, 1997, 2003).

Incumbent companies might become frantic at the late stages of this process once they realize that they are facing an existential threat, however until that point disruption had been building up slowly. *"How did you go bankrupt? Two ways. Gradually, then suddenly,"* Ernest Hemingway wrote, and this has become one of the favorite quotes for analysts to describe how disruption takes place (Sinofsky, 2013; Dediu, 2015; Thompson, 2016).

Despite the attractiveness of Hemingway's narrative and the soundness of Christensen's model, the historical evidence from the personal and mobile computing industries seems to be at odds with the traditional understanding of disruption theory. Infamously, Christensen predicted in 2007 that the iPhone was not *"truly disruptive"* and that it would fail against incumbent companies (McGregor, 2007). Instead of being anecdotal, this miscalculation suggests that aspects of disruptive innovation have yet to be explained, and that the case studies of the personal and mobile computing industries can provide valuable evidence for improving disruption theory.

In order to understand this problem this research analyzed quantitatively and qualitatively the history of the personal and industry from 1974 to 2015. Before presenting the results of this study, however, we need a precise understanding of the concepts of disruptive innovation theory.

2. The theory of disruptive innovation

The confusion surrounding the concept of disruptive innovation has frequently been blamed on its popularization, as seen in Figure 1. Surprisingly, both supporters and detractors of the concept seem to agree on that (Danneels, 2004; Christensen, 2006, 2015; Dediu, 2014b; Thompson, 2013b; Gans, 2014; Lepore, 2014; Sood and Tellis, 2011; Yu and Hang, 2010; Yamaguchi, 2006).
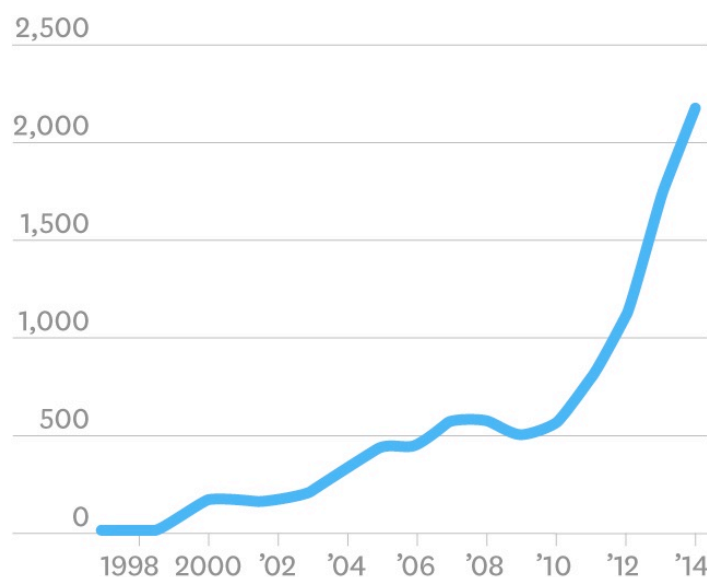
Figure 1: Number of articles using 'disruptive innovation' and 'disruptive technology' (Christensen, 2015).

While the popularization of the concept of disruptive innovation is true and has added to the polemic, this research considers that the problems in the understanding of disruption cannot be blamed only on this. There are profound disagreements inside academia in regard to disruption, and Christensen's conceptualization of disruptive innovation has been difficult to define, measure, and corroborate (Sood and Tellis, 2011). Furthermore, many of the most emblematic case studies of disruption have been questioned to date: disk drives (Nishimura, 2014; Lepore, 2014), personal computers (Thompson, 2013b), transistors (Yamaguchi, 2006), steel minimills and hydraulic excavators (Lepore, 2014).

Nowadays there are two main variants of the theory of disruptive innovation. In its orthodox interpretation disruption has come to mean the same as Christensen's theory of disruption (1997, 2003, 2006). On the other hand, a pluralistic interpretation considers the theory of disruption to be a broader field of study (Sood and Tellis, 2011; Čiutienė and Thattakath, 2014; Gans, 2016). The pluralistic interpretation is the one preferred on this research, but the preeminence of Christensen's work as the father of disruption's theory is also acknowledged.

Christensen's theory of disruption is actually composed of two sub-theories: new market disruption, and low-end disruption (Christensen, 2006). Both theories share many concepts and study similar phenomena, however they have yet to be successfully unified into one consistent theory (Thompson, 2013a, 2014b). Christensen's latest effort for unification in an improved 'Theory of Disruption 2.0' (2016) is a work in progress that has yet to be tested and widely adopted by the research community.

Christensen (1997, 2003) has explained systematically the four key concepts of his original interpretation of disruption theory, shared both by new market disruption and low-end disruption. These four concepts are: 1) product performance, 2) sustaining technology, 3) disruptive technology, and 4) customer needs.

Product performance is a variable which measures the traditional dimension of performance of a product, or in Christensen's words *"the dimensions of performance that mainstream customers in major markets have historically valued"* (1997). For many products, performance is not just one dimension, but actually a combination of several dimensions in an intricate value proposition. Today, this abstract measure of product performance is frequently referred as 'the basis of competition'.

Product performance allows us to define sustaining and disruptive technologies. According to Christensen, sustaining technologies *"foster improved product performance. Some sustaining technologies can be discontinuous or radical in character, while others are of an incremental nature. What all sustaining technologies have in common is that they improve the performance of established products, along the dimensions of performance that mainstream customers in major markets have historically valued"* (1997).

On the other hand, disruptive technologies are *"innovations that result in worse product performance, at least in the near-term. Disruptive technologies bring to a market a very different value proposition than had been available previously. Generally, disruptive technologies underperform established products in mainstream markets. But they have other features that a few fringe (and generally new) customers value"* (1997). Despite their naming, disruptive technologies do not cause disruption by definition, although causation is implied. For Christensen a technology only needs to lower product performance in order to be called a disruptive technology. Because of this, other researchers prefer the term 'potentially disruptive technologies' (Sood and Tellis, 2011).

Intuition would tell us that disruptive technologies should not succeed in the market since they offer worse performance. However, performance has to be understood in relation to customers. Customer needs are *"the rate of performance improvement that mainstream customers demand or can absorb"* (1997). Christensen found that the pace at which technologies performance improve is usually much faster than the pace at which customer needs increase. Because of this, in certain scenarios the performance of a superior traditional technology and an inferior disruptive technology can be equivalent for mainstream customers.

According to Christensen, is not the case that disruptive technologies underperform, but rather that traditional technologies overshoot mainstream customer needs. The views of the authors on this hypothesis and the relation between product performance and costumer needs can be found in a different paper soon to be published (Montoya and Kita, 2017). We believe that the jury is still out on this hypothesis, but Christensen's model can be adapted if needed.

These four conceptual building blocks: 1) product performance, 2) sustaining technology, 3) disruptive technology, and 4) customer needs, are all that is need to visualize disruption, which is frequently done as illustrated in Figure 2.
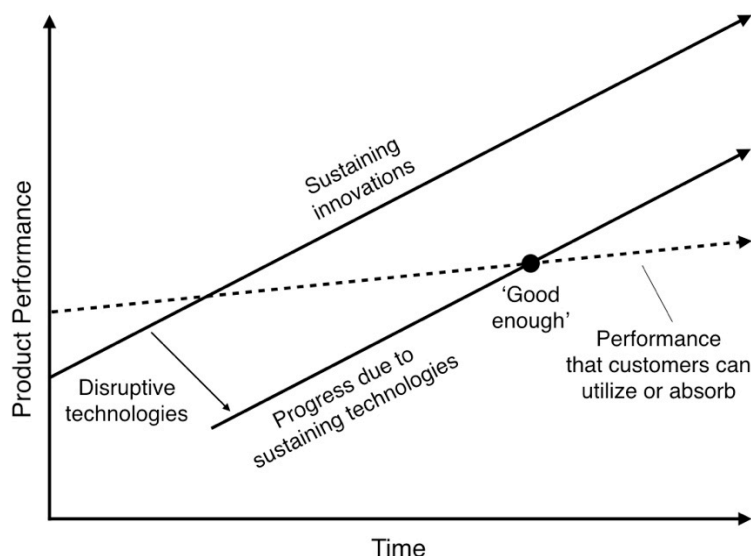
Figure 2: Trajectories of sustaining and disruptive technologies (Christensen, 1997).

From a macro perspective the explanation of disruptive innovation varies slightly depending on whether it is a low-end or new market disruption. In the case of low-end disruption the process is explained in terms of achieving performance-competitiveness. Christensen described it using the case study of the computing industry as follows:

> *"In their efforts to provide better products than their competitors and earn higher prices and margins, suppliers often "overshoot" their market: They give customers more than they need or ultimately are willing to pay for. And more importantly, it means that disruptive technologies that may underperform today, relative to what users in the market demand, may be fully performance-competitive in that same market tomorrow.*
>
> *Many who once needed mainframe computers for their data processing requirements, for example, no longer need or buy mainframes. Mainframe performance has surpassed the requirements of many original customers, who today find that much of what they need to do can be done on desktop machines linked to file servers. In other words, the needs of many computer users have increased more slowly than the rate of improvement provided by computer designers."*
> —Christensen, 1997.

In the case of new market disruption, however, the process is explained in terms of economies of scale. Using a more recent understanding of disruption pioneered also by Christensen (2003, 2006), Benedict Evans described the process of new market disruption using the same case study of the computing industry as follows:

> *"Until recently, the PC ecosystem was the centre of gravity of the tech industry: it was where the investment and innovation was centred. It took that role away from mainframes, minicomputers and workstations slowly and in stages over the previous 30 years or so. Crucially, though, PCs didn't start*

> *out selling to customers of mainframes, minicomputers or workstations - rather PCs were able to access a new and much larger pool of customers, and that gave PCs scale that, a decade or two later, allowed them to replace almost everything else. PCs could be sold to so many more people that their economies of scale became overwhelming. Eventually, there was no way that, say, the workstation industry could match the investment of the PC industry, and Sun and SGI were overtaken. And today, even a 'data centre' just means millions of 'personal computers'. Ecosystem scale won."*
> —Evans, 2016.

While low-end disruption is a direct process that is a consequence of customers' choices in the market, new market disruption is indirect and caused by changes in the supply chain. Suppliers and investors play a role as vital as customers in explanations based on economies of scale.

It must be stressed that low-end disruption and new market disruption are sub-theories that frequently overlap, as the case study of the computing industry shows. One sub-theory is not intended to replace the other, but instead they describe different scenarios or aspects using shared concepts. For the purposes of this research we have decided to focus on one of their common characteristics, which is they way disruption is described as a gradual and almost methodical process, regardless of whether it is low-end or new market disruption.

The effect desired by the above descriptions from Christensen (1997) and Evans (2016) is to stress the inevitability of disruption. Fatalist descriptions are the norm in studies about disruption (Lepore, 2014). But in their effort to stress the final upheaval of the market, researchers have paid less attention to the evolution of the market and the possibility of phases in disruption. In Christensen's model, previously showcased in Figure 2, disruption takes place steadily, and the focus is on how the disruptive technology overtakes the previous technology 'eventually'. But how and by whom is the disruptive technology propelled is not considered in detail by the model, it is assumed that the disruptive technology gets better simply by sustaining improvements, and that the participants in the market (entrants and incumbents) remain the same throughout the whole process.

Besides the key four concepts previously explained, an additional concept called 'the innovator's dilemma' has been proposed by Christensen as the causal mechanism that enables disruption from a micro perspective. This concept deals with the managerial reasons why incumbent companies under disruption are almost always unable to fend off the treat of disruptive technologies. The innovator's dilemma has been the focus of ample research, both for and against it (Danneels, 2004; Christensen, 2006, 2015; Dediu, 2014b; Thompson, 2013b; Gans, 2014; Lepore, 2014; Sood and Tellis, 2011; Yu and Hang, 2010; Yamaguchi, 2006). While acknowledging the importance of this debate, this research does not focus on the micro perspective of disruption, instead this research addresses the problem of the causal mechanism of disruption from a macro perspective.

3. Methodology

In order to measure disruption in the personal and mobile computing industries data for 58 product lines was collected, including personal computers, smartphones, personal digital assistants (PDA), tablets, and operating systems from 1974 to 2015. Each product line should be understood as all versions of a product from its introduction until its discontinuation as seen in Table 1.

Table 1: Product lines in the computing industry.

Product series	Company	Form factor	New entrant to market	Worsens performance	Shifts basis of competition
Altair 8800	MITS	Personal computer	1	1	1
Atari 400/800	Atari, Inc.	Personal computer	1	1	1
Commodore PET & 64	Commodore	Personal computer	1	1	1
Commodore (Amiga)	Commodore	Personal computer	0	1	1
TRS-80	Tandy Corporation	Personal computer	1	1	1
Olivetti M24	Olivetti	Personal computer	0	1	0
ZX80 & ZX Spectrum	Sinclair	Personal computer	1	1	0
IBM PC	IBM	Personal computer	0	1	1
Compaq Portable	Compaq	Personal computer	1	1	1
HP series 80	Hewlett-Packard	Personal computer	0	1	1
HP Pavilion / HP branded Compaq Presario	Hewlett-Packard	Personal computer	0	0	1
Dell (online store)	Dell	Personal computer	0	1	1
Packard-Bell	Packard-Bell	Personal computer	1	1	0
PC-8800 and PC-9800	NEC	Personal computer	0	1	1
Fujitsu Micro (FM)	Fujitsu	Personal computer	0	1	1
Toshiba T1100	Toshiba	Personal computer	0	1	1
Acer Aspire	Acer	Personal computer	0	1	1
Asus Eee PC	Asus	Personal computer	0	1	1
Lenovo ThinkPad	Lenovo	Personal computer	0	0	1
Xerox Alto & Star	Xerox	Personal computer	1	1	1
Apple I and II	Apple	Personal computer	1	1	1
Lisa	Apple	Personal computer	0	1	1
Macintosh	Apple	Personal computer	0	1	1

NeXT Computer	NeXT	Personal computer	1	0	0
Newton	Apple	Handled device	1	1	1
Palm Pilot	Palm	Handled device	1	1	1
Palm Pre	Palm	Handled device	0	0	1
Blackberry	Research In Motion/RIM	Handled device	1	0	1
BlackBerry Z10	Research In Motion/RIM	Handled device	0	0	0
Nokia 7650 (Symbian OS, S60 platform)	Nokia	Handled device	0	0	1
Nokia Lumia	Nokia	Handled device	0	0	0
iPaq and HTC Canary	HTC	Handled device	0	1	0
HTC Dream	HTC	Handled device	0	0	0
iPhone	Apple	Handled device	1	1	1
Motorola Droid	Motorola	Handled device	0	1	1
Samsung Galaxy	Samsung	Handled device	0	1	1
Xiaomi	Xiaomi	Handled device	1	1	0
Lenovo branded as Motorola	Lenovo	Handled device	0	0	0
Oppo	BBK	Handled device	1	1	1
Vivo	BBK	Handled device	0	1	1
iPad	Apple	Tablet	0	1	1
HP Compaq TC1100 (Microsoft Tablet PC)	Hewlett-Packard	Tablet	0	1	0
Surface	Microsoft	Tablet	0	1	0
Android (Tablet)	Google	Tablet	1	1	0
BlackBerry PlayBook	Research In Motion/RIM	Tablet	0	1	0
HP TouchPad	Hewlett-Packard	Tablet	0	1	0
Kindle Fire	Amazon	Tablet	1	1	0
MS-DOS	Microsoft	Operating System	1	1	1
Windows	Microsoft	Operating System	0	1	1
Microsoft Tablet PC	Microsoft	Operating System	0	0	0
Windows CE, Pocket PC, Mobile	Microsoft	Operating System	1	1	1
Windows Phone	Microsoft	Operating System	0	0	0

Linux (desktop)	GNU GPL	Operating System	1	1	1
OS/2	IBM (partly, Microsoft)	Operating System	0	0	0
BeOS	Be Inc.	Operating System	1	0	0
NeXTSTEP	NeXT	Operating System	1	0	0
Android	Google	Operating System	1	1	1
Symbian	Symbian Ltd. (Nokia)	Operating System	0	0	0
Total			24	42	36

Instead of using a random sample, this dataset was built by exhaustively collecting information on as many product lines as we could identify, in such a way that the sample resembles the population as much as possible in order to avoid selection bias. We believe this dataset to be comprehensive and are not aware of important omissions (Reimer, 2005, 2012a, 2012b; Dediu, 2012b), but keep working in expanding it.

Spearman correlation was calculated across 18 dummy variables: 10 independent variables represent concepts about disruptive innovation, and 8 dependent variables represent market effects. Following Sood and Tellis (2011) this researched first attempted to define disruptive technologies strictly as *innovations that lower product performance*, regardless of their market effects (Christensen, 2006; Sood and Tellis, 2011). However, this approach probed insufficient, because of this more variables and flexible definitions were introduced to reflect the variety of interpretations present in disruption literature today. The definitions for each variable are presented below:

Independent variables

- Entrant: Was the company who developed the product a new entrant to the industry at the time of its introduction?
- First mover: Was the product introduced to the market before mainstreamization took place?
- Worse performance: Did the product worsen performance in the dimension historically valued by customers?
- Shifts basis of competition: Did the product shift competition from the dimension historically valued by customers to a new dimension?
- Christensen's new market disruptive innovation: Does the product conform strictly to Christensen's definition of new market disruptive innovation?
- Christensen's low-end disruptive innovation: Does the product conform strictly to Christensen's definition of new market disruptive innovation?
- High-end: Was the product high-end in comparison to other products in the market at the time of its introduction?
- Self disruptive (intent or risk): Did the company intentionally introduce a product that carried the risk of self-disruption?
- Radical innovation: Did the product introduce a radical innovation as defined by Dossi?
- Architectural Innovation: Did the product introduce an architectural innovation as defined by Henderson and Clark?

Dependent variables

- Disrupts market: Did the product disrupt the market conforming strictly to Christensen's model: the capture of most of the market starting from the low-end?
- Disrupts market (flexible): Did the product disrupt the market according to a more flexible definition based on a pluralistic interpretation: the capture of substantial market or profit share?
- Creates market: Did the product contribute to the creation of a new market?
- Expands market: Did the product contribute to the expansion/mainstreamization of the existing market?
- Commoditizes market: Did the product contribute to the commoditization of the market?
- Self disrupts (effect): Did the product cannibalize different product lines of the company?
- Success in market: Did the product succeed in the market taking into account the size of the market at the time?
- Lasting success: Did the product succeed for a long time in the market?

3.1. Notes and limitations

The categorization was done using binary variables whose value was assigned by the authors after researching every product's history in detail. While the use of binary variables introduces limitations, they also help to avoid a common problem of variables with more than two possible values, which is the accumulation of observations that are assigned an intermediate value when in doubt. For example, a value of 3 in a scale of 1 to 5 that tries to measure 'disruptiveness', which defeats the purpose of categorizing. We found that the additional level of detail of polytomous variables with multiple values did not reflect a real increase in certainty.

This research found several challenges during categorization whose disclosure can be useful to other researchers attempting similar studies. Christensen warned that *"a given firm would be considered an entrant at one specific point in the industry's history. Yet the same firm would be considered an established firm when technologies that emerged subsequent to the firm's entry were studied"* (1997). Despite this caution, this research found that the literature about the history of the computing industry tends to overestimate the number of new entrants by either ignoring the product offer in the enterprise market, or by continuing to classify companies as entrants a long time after their entry. Correcting this has the effect of greatly reducing the number of companies that are categorized as entrants on this research.

In order to asses whether a product worsened or sustained performance is not sufficient to compare two products, a grasp of market trends is necessary to understand whether a product lowers performance or not. It also should be reiterated that the basis of competition is constantly shifting in the market. In order to asses whether a product shifted or sustained the basis of competition, researchers need to keep tract of previous shifts. This notion is more flexible than the original concept of lowering performance, however identifying when the basis of competition changes or

not can be highly subjective (Nishimura, 2014; Dediu, 2012g; Christensen, Raynor, McDonald, 2015).

Finally, the effects of disruption of the market were measured in two main different forms: disruption of the market (gains in market share), and success in the market (net profits). There are methodological difficulties in both approaches. Measuring disruption only in terms of market share poses a problem in young markets where first movers can capture a high market share with comparatively few unit sales. On the other hand, measuring disruption only in terms of net profits tends to over-represent companies in mature markets because the market is much bigger.

4. Results

The results for Spearman correlation are presented in Table 2.

Table 2: Spearman's rank correlation coefficient for at least $p < 0.1$

	Entrant	First mover	Worse performance	Shifts basis of competition	Christensen's new market disruptive innovation
Disrupts market	-0.2880*			0.4699***	
Disrupts market (flexible)			0.2529	0.5958***	
Creates market	0.2281	0.35737**		0.3472**	0.5868***
Expands market		0.2576	0.2469	0.3126*	
Commoditizes market		-0.3849**		0.3185*	-0.2366
Self disrupts (effect)				0.2896*	
Success in market			0.3958**	0.4715***	
Lasting success			0.3152*	0.3992**	

	Christensen's Low-end disruptive innovation	High-end	Self disruptive (intent or risk)	Radical innovation	Architectural Innovation
Disrupts market	0.3738**				
Disrupts market (flexible)		-0.2530*		0.2189	
Creates market	-0.3687**			0.5620***	
Expands market					0.5650***
Commoditizes market	0.6869***	-0.2991*		-0.2654*	
Self disrupts (effect)			0.7658***		
Success in market	0.4308***	-0.4812***			
Lasting success			0.2957*	0.2820*	0.4128**

One star (*) if $p < 0.05$, two stars (**) if $p < 0.01$, and three stars (***) if $p < 0.001$

As seen in Table 2, being a new entrant correlates negatively with with disruption of the market according to Christensen (-0.2880*), the opposite of what the theory suggests. As expected being a first mover correlates positively with the creation of new market (0.35737**), and negatively with the commoditization of the market (-0.3849**).

Worse performance correlates positively with success in the market (0.3958**), lasting success (0.31524*), and disruption of the market based on a pluralistic interpretation (0.2529), but not with Christensen's stricter definition. On the other hand, shifting the basis of competition correlates more strongly with almost all measures of disruption: disruption of the market according to Christensen (0.4699***), disruption of the market based on a pluralistic interpretation (0.5958***), creation of a new market (0.3472**), expansion of the market (0.3126*), commoditization of the market (0.3185*), self disruption (0.2896*), success in the market (0.4715***), and lasting success (0.3992**). The notion of 'basis of competition' is a more powerful concept than 'worse performance' in predicting disruption, however it requires more interpretative work (Nishimura, 2014; Dediu, 2012g; Christensen, Raynor, McDonald, 2015).

As expected Christensen's new market disruptive innovation correlates positively with the creation of a new market (0.5868***), and negatively with the commoditization of the market (-0.2366***). Likewise, Christensen's low-end disruptive innovation correlates positively with the commoditization of the market (0.6869***), and negatively with the creation of a new market (-0.3687**).

Being high-end correlates negatively with most measures of disruption, as expected. However, the intent to self disrupt correlates positively with effects of self disruption in the market (0.7658***) and lasting success (0.2957*). This unexpected result tells us that the concept of self disruption is promissory.

Radical innovation correlates positively with the creation of a new market (0.5620***), and is a predictor as powerful as Christensen's new market disruptive innovation. On the other hand, architectural innovation correlates positively with expansion of the market (0.5650***) and is its strongest predictor. Architectural innovation is also the strongest predictor of lasting success (0.4128**).

The correlation analysis gives Christensen's theory a very good score. Christensen's theory was controversial at its time for its counterintuitive findings, and today is still strongly criticized by many, however the correlation analysis validates Christensen's theory. At the same time some unexpected results were found: radical innovation is still important, architectural innovation explains things disruption theory alone cannot, and self-disruption is possible.

5. Types of disruption

Concurrent research by the authors has showed that the computing industry is rich in examples of products that lowered the performance in dimensions historically valued by costumers (Montoya and Kita, 2017). In the history of the computing industry the fast pace of improvement of Moore's law frequently generated gaps in which customer needs for raw computing were temporally over-served, and this created opportunities for innovations that temporally worsened performance. Companies were confident that Moore's law would bring improvements later (Moore, 1965).

In Christensen's model disruption takes place steadily. This might be the case for mature markets where the size of the market is known, however in immature markets disruption can take place at the same time that the market grows. This research found

that Geoffrey Moore's work — not to be confused with Gordon Moore — based on Everett Rogers's technology adoption life-cycle (1962) and the original concept of the 'chasm' (Moore, 1991, 2001), offers a more detailed description of evolving markets than Christensen's theory. This model can be seen in Figure 3.
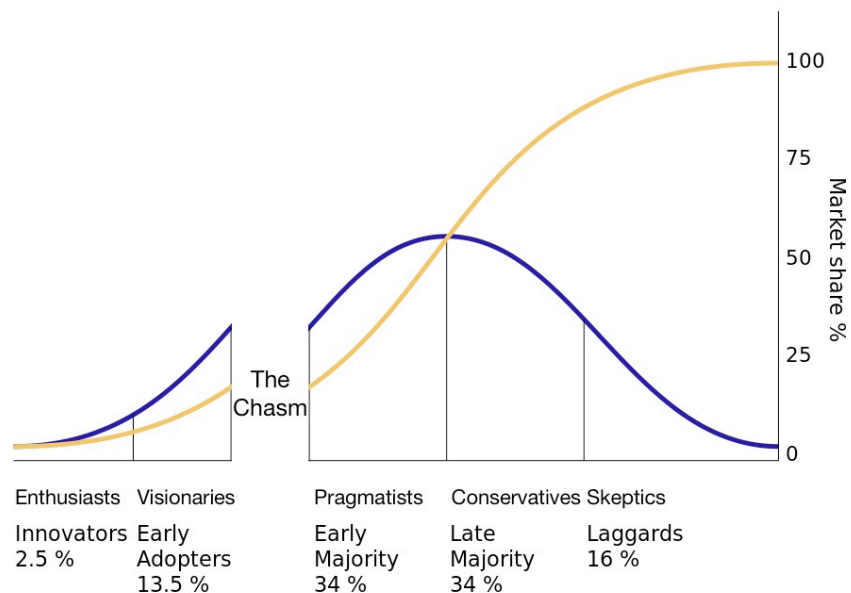
Figure 3: Rogers's technology adoption life-cycle and Moore's chasm (Moore, 1991).

Using historical analysis this research identified three different types or phases of disruption: 1) disruption by creation of a new market, 2) disruption by 'mainstreamization' of the market, and 3) disruption by commoditization of the market. The timing of these phases can be seen in Figure 4.
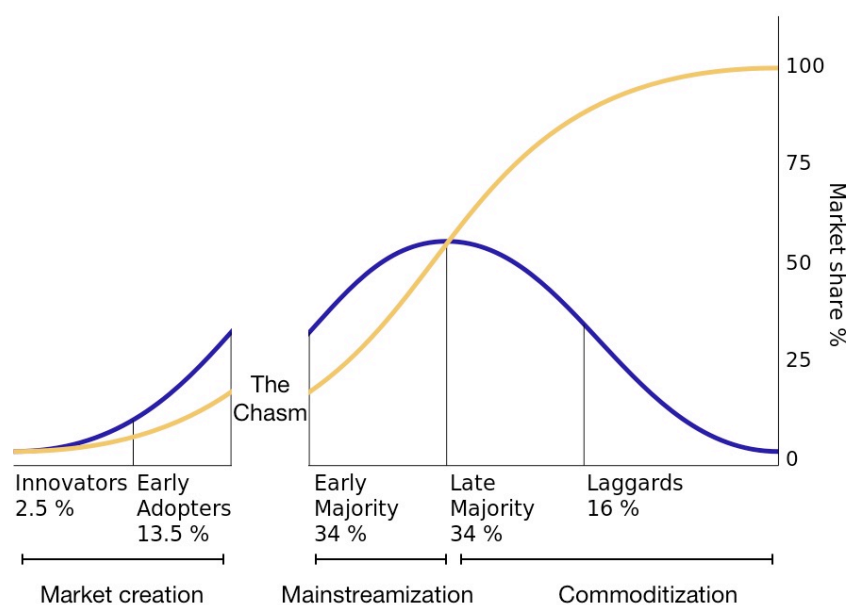
Figure 4: Three types of disruption identified by this research.

5.1 Disruption by creation of a new market

The creation of a new market can be seen in the early stages of the personal computing and mobile computing industries respectively. Some examples in personal computing include: Altair 8800, Commodore PET, TRS-80, Atari 400 and 800, and Apple I and II. And some examples in mobile computing include: Newton, Palm, Windows CE, and BlackBerry. Without the companies who introduced the first products in new categories, these industries would not exist at all today. Many first movers were able to succeed, however not all of them succeeded for a long time.

Behind the first personal computers was a radical innovation, as defined by Giovanni Dossi (1982). The first commercial microprocessors in the early 70s (specially Intel 4004 and 8008), which incorporated the functions of the CPU on a single integrated circuit, allowed for a new market of cheaper and smaller computers.

Old incumbent companies (Olivetti, Hewlett-Packard, Commodore International) and young entrant companies (MITS, Atari, Sinclair Instrument, Apple) alike were able to enter the market and succeed in this early phase. There was no difference between incumbent and entrants as Christensen's theory predicts.

A similar pattern can be found in the emergence of personal digital assistants (PDA) and smartphones. Behind this new product category was also a radical innovation: low-power microprocessors in the early 90s (specially ARM), which enabled a new market of handheld computers.

Although the Newton was a flop for Apple and was discontinued, other companies' products where able to succeed in the early phase of the market, including Palm, Windows CE, and RIM's BlackBerry. These products were key in creating a new market and their success was considerable for a young market in the 90s, however they have been eclipsed by the huge growth of smartphones in the 2010s.

5.2 Disruption by mainstreamization

After a first wave of products shows the viability of a new market, there is still uncertainty about the size of that market. A second wave of products expands the market to its full potential through mainstreamization. Some examples in personal computing include: Xerox Alto, Xerox Star, Macintosh, IBM PC, and Windows. And some examples in mobile computing include: iPhone and Android.

Mainstreamization is dependent on crossing Moore's chasm. According to Moore, *"whenever truly innovative high-tech products are first brought to market, they will initially enjoy a warm welcome in an early market made up of technology enthusiasts and visionaries but then will fall into a chasm, during which sales will falter and often plummet. If the products can successfully cross this chasm, they will gain acceptance within a mainstream market dominated by pragmatists and conservatives"* (2001).

The path to crossing the chasm can be found in the development of a 'whole product,' or more precisely a 'dominant design'. According to Anderson and Tushman *"a break through innovation inaugurates an era of ferment in which competition among*

variations of the original breakthrough culminates in the selection of a single dominant configuration of the new technology" (1990).

Henderson and Clark have tied the development of dominant designs to architectural innovation: *"the reconfiguration of an established system to link together existing components in a new way"* (1990). Joshua Gans (2016) has been a promoter of connecting this research to Christensen's theory. This research found that the mainstreamization of the personal and mobile computing markets was generated by the emergence of dominant designs through architectural innovation.

In the case of personal computing, the first personal computers such as the Altair 8800 and Apple II were products catering to technology enthusiasts in the 70s. The IBM PC targeted the mainstream market in 1981, but it was still difficult to use. The dominant design that helped cross the chasm in personal computing was the result of an architectural innovation in the mid 1980s: the development of the Graphical User Interface (GUI).

While the level of originality of Xerox, Apple, and Microsoft in developing the GUI can be argued — as several lawsuits attest —, from an academic point of view all three companies deserve to be credited for the early adoption of the GUI and helping the mainstreamization of the personal computing market. On the other hand, companies that were too late never won a foothold in the market. After the consolidation of the market, no alternative computing platforms were able to emerge: OS/2, NeXTSTEP, BeOS, AmigaOS 4, all failed.

This same pattern can be found in the mobile computing industry. Architectural innovation at Apple resulted in the iPhone, which helped define a dominant design for smartphones in 2007. This dominant design established multi-touch as the default interface of smartphones. Previous devices like the Newton and Palm introduced touch interfaces before, but they used a stylus and maintained old desktop metaphors that failed to pass Anderson and Tushman's test.

Companies that were late in adopting the dominant design introduced by the iPhone stumbled in the market, such as RIM, Nokia, and Microsoft. In contrast, Google who quickly adopted the iPhone's design for Android in 2008 was successful.

5.3 Disruption by commoditization

Disruption by commoditization takes places after no unforeseen growth of the market is expected. Sales come from the late majority of customers and the replacement cycle, and growth for a company comes at the expense of competitors' market share. Some examples in personal computing include: PC manufacturers like Compaq, Hewlett-Packard, Dell, Asus, Acer, and Lenovo. And some examples in mobile computing include: Android vendors like HTC, Samsung, and Xiaomi.

The main driver of commoditization are 'efficiency innovations' that get rid of inefficient structures, unnecessary intermediaries, and reduce costs. As defined by Christensen, efficiency innovations *"help companies make and sell mature, established products or services to the same customers at lower prices. Some of these*

innovations are what we have elsewhere called low-end disruptions, and they involve the creation of a new business model" (2014).

In the personal computing industry lowering performance was a common technique thanks to Moore's law. Because of this lowering performance had to come accompanied of other business innovations to disrupt the market. Entrants did not introduce efficiency innovations when they joined the market, instead they did it later as incumbents once they gained enough inside knowledge of the inefficiencies in their industry.

Examples of efficiency innovations in personal computing in the late 90s and 2000s include Hewlett-Packard's merge and acquisitions, Dell's just-in-time manufacturing and direct sales online, and Lenovo's leverage of the shift of the computing industry supply chain to Asia. As for mobile computing, some of the examples are Samsung's vertical integration in manufacturing, and Chinese manufacturers Xiaomi, Vivo, and Oppo's model of rapid hardware iteration that leverages their closeness to the supply chain.

The cases of disruption by commoditization show us a picture that resembles the closest Christensen's understanding of disruption: market changes coming from low-end and business models innovations. However, a more detailed analysis reveals significant discrepancies, such as disruptors being more frequently incumbents instead of entrants.

6. Conclusions

This research found a significant statistical correlation between disruption and technologies that lower performance, just as suggested by Christensen. An even stronger correlation between disruption and technologies that shift the basis of competition was also found, however we caution that identifying these shifts can be highly subjective (Nishimura, 2014; Dediu, 2012g; Christensen, Raynor, McDonald, 2015). Overall, the quantitative analysis made on this research validates Christensen's theory.

Further qualitative analysis helped to improve the understanding of disruption. Using historical evidence this research found three types or phases of disruption according to the maturity of the market and proposed an original categorization: 1) disruption by creation of a new market, 2) disruption by mainstreamization of the market, and 3) disruption by commoditization of the market.

We also found a linkage between these phases and three different patterns of innovation: 1) radical innovations tend to create new markets, 2) architectural innovations define the dominant designs which are needed for the mainstreamization of a market, and 3) efficiency innovations reduce costs and get rid of inefficient structures commoditizing the market.

Finally, this research tended a bridge between disruption theory and separated bodies of research like Geoffrey Moore's chasm, and Henderson and Clark's architectural innovation. We believe that the findings and contributions of this research have deep implications for disruption theory that go beyond the case study of the computing

industry. Further research in other industries would be the next step for testing and improving these contributions.

Acknowledgements

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Factors Predicting Intention to Use Social Network among Buddhist Monks in Bangkok

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Abstract

This research study on "Factors Predicting Intention to Use Social Network among Buddhist Monks in Bangkok" has the following objectives: 1. To study correlation between perceived self-efficacy in using technologies, perceived usefulness, perceived ease of use, subjective norm and intention to use social network sites among Buddhist monks. And 2. To study factors that affect intention of the monks to use social media networks. The sample group of this research consists of 400 monks in Bangkok. The research methodology involves questionnaires used in collecting data, analysis of data through the statistical methods of frequency tabulation, percentage, mean, standard deviation, Pearson product-moment correlation coefficient, and multiple regression analysis. It was found that the perceived self-efficacy in using technologies, perceived usefulness, perceived ease of use and subjective norm have positive correlation to the intention to use social network, with statistical significance at the 0.05 level. And all the factors have influence over the intention to use social network, with statistical significance at the 0.05 level. All the four factors jointly explain the variation in the monks' intention to use social network for 44 per cent.

Keywords: Perceived Usefulness, Perceived Ease of Use, Intention to Use Social Network, TAM

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Introduction

Today, information technology has become part of people's everyday life. This can be seen in the volume of Internet use and online social network use, which has seen an increasing number of users and usage every year. Zocial Inc., a company that analyses data about online social networks, conducted a study in 2015 on 655 Thais regarding the use of social networks in their everyday life since they wake up until going to bed. These important and interesting data were found: As many as 99 per cent of Thais use Facebook, 84 per cent use Line, 56 per cent use Instagram, 41 per cent use Google+, and 30 per cent use Twitter.

The users of online social networks consist of a wide range of people of all ages from both sexes, and also those with different religious beliefs. Among them are many Buddhist monks who use social media networks with different objectives. A substantial number of monks use social networks for communicating and distributing Buddhist religious teachings. These include Venerable V. Vajiramedhi and Phra Paisal Wisalo. Other monks use chat applications to answer questions regarding the religion and to teach worshippers about insight meditation (Vipassana Kammathan). However, a number of monks use online social networks in a way that is inappropriate for priests like them. There have been instances of such inappropriate behaviours from time to time. There were images of monks doing a shopping at the Panthip shopping mall, which has large varieties of electronic goods including computers, hardware and software products. Criticisms ensued and people asked whether it was appropriate for the monks to do so. Also, the Facebook account "Sangha Vijahn" (Criticising Monks) posted screenshots of chats between a monk and a woman. The monk in question sent flirting messages to the woman, who responded that such messages were against the monastic rules and that what h was doing was wrong. The monk claimed that he was going to leave his monkhood soon. He then asked if he could meet the woman after he left his monkhood. He wanted to know if he could date her if she had no boyfriend. The screenshots were released shortly before the end of Buddhist Lent, when many monks having ordained for monastic practice for three months are about to leave their monkhood.

With the social changes, information technology has increasing influence in people's everyday life. Monks who are part of society are also unable to escape from the changes. Several research studies were conducted on people's behaviours regarding the use of online social networks among different groups including children, teenagers, adults, working people, women and the elderly. However, a literature review revealed that there were only a small number of research studies on monks and online social networks. Religion is a major institution in Thai society. So it is necessary for us to study this matter for a better understanding of monks' behaviours in using the online social networks, as well as factors affecting their adoption and use of social networks. As a result, there is this research study on "Factors Predicting Intention to Use Social Network among Buddhist Monks in Bangkok". In conducting this study, the researcher relies on the Technology Acceptance Model, or TAM, which was developed by Fred Davis (1989). A TAM model was used in testing the hypotheses. This theory explains about different factors that affect people's decisions in adopting any particular technology. Important factors that affect people's decision-making are:

1. Perceived usefulness, which refers to the degree to which a person believes that using a particular technology would enhance his or her job performance;

2. Perceived ease of use, which refers to the degree to which a person believes that using a particular technology would be free from effort.
Those factors lead to the intention to use that particular technology, which in turn affects the behaviour of eventual acceptance of the particular technology.
TAM is a theory that is acceptable and widely used in several research studies, particularly regarding information technology and mass communications.

Research objectives

1. To study the degree of perceived ability in using technology, perceived usefulness, perceived ease of use, subjective norm, and monks' intention to use social networks.
2. To study factors that are able to jointly predict the intention of monks to use social networks.

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┌──────────────────┐
│ Perceived        │
│ Technology Self- │
│ Efficacy         │
└──────────────────┘
                              ┌──────────────────────┐
┌──────────────────┐          │ Intention to use     │
│ Perceived        │ ────────▶│ social network sites  │
│ Usefulness       │          │ among Buddhist monks  │
└──────────────────┘          └──────────────────────┘

┌──────────────────┐
│ Perceived ease of│
│ use              │
└──────────────────┘

┌──────────────────┐
│ subjective norm  │
└──────────────────┘
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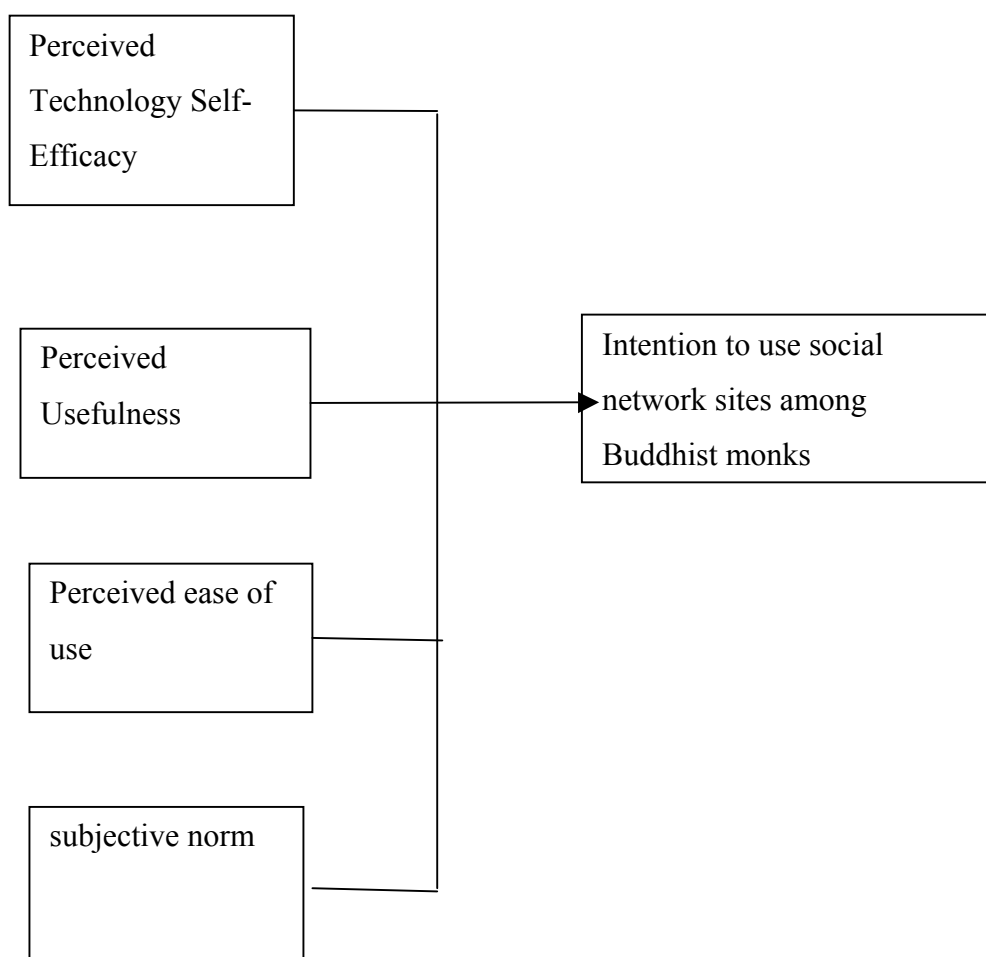
Research hypothesis

The perceived ability, perceived usefulness, perceived ease of use and subjective norm are factors capable of predicting monks' intention to use social networks.

Research methodology

This study on "Factors Predicting Intention to Use Social Network among Buddhist Monks in Bangkok" is conducted with the Quantitative Research methodology, through the use of the Survey Research Method.

Population, sample group and sampling method

The population is this study is Buddhist monks in Bangkok who have used social network for at least one year after entering monkhood. The size of samples is determined with the use of Taro Yamane's sampling table, at the 95 per cent confidence level and 5 per cent margin of error. The sample size is 400 and the sample is selected with the Multi-Stage Sampling method.

The tool used in collecting data is questionnaires that are created in accordance with the educational purposes.

After the data are collected and verified, they are encoded and processed with statistical computer software. The statistical methods used in this research study are:

1. Descriptive Statistic Analysis: The researcher uses this method through Frequency Distribution, Percentage, Mean and Standard Deviation.
2. Inferential Statistic Analysis: This is used in analysing data with the goal of testing the hypothesis. The Multiple Regression Analysis method is used to explain the correlation and efficiency in predicting different factors, at the statistical significance level of 0.05.

Research findings and discussion

Regarding the general data involving the sample group, it was found that most of the samples are aged between 20 and 30. They numbered 223, making up 55.8 per cent of all the samples. Most of the samples had been in monkhood for one to three years. This group numbered 146 monks, or 36.5 per cent of all the samples. Regarding layman's education, most of the samples graduated with a bachelor's or comparable degree. This group numbered 147 monks, or 36.8 per cent of the samples. Regarding monastic education, most of the samples completed Pali studies in the third (out of nine) level. They numbered 105, or 23.5 per cent of all samples.

The sample group has average perceived ability to use technology at the 3.50 level, average perceived usefulness in using social network at 3.78, average perceived ease of use in using social network at 3.69, average subjective norm at 3.33, and average intention to use social network at 3.52.

Table 1 Multiple Linear Regression analysis the factors to predict Intention to Use Social Network

Factors to Predict Intention to Use Social Network	b	Beta	t	Sig.
Technology Self-Efficacy	.112	.108	2.004	.046
Perceived Usefulness	.150	.123	2.082	.038
Perceived Ease of Use	.272	.235	4.104	.000
Subjective Norms	.315	.322	6.597	.000
R^2 = 0.446, Adjusted R^2 = 0.440 , Sig = .000*				

* Significant at the 0.05 level

Tests with multiple regression analysis showed that the factors perceived Technology Self-Efficacy, perceived usefulness, perceived ease of use and subjective norm affected the intention to use social network, with statistical significance at the 0.05 level. The four factors jointly explained the variation of monks' intention to use social network for 44 per cent. The factor subjective norm had the standard regression coefficient of 0.322, the highest among all the factors. So, subjective norm has the most influence on the intention to use social network. That means the reference group has high influence on people's intention to use social network, particularly regarding the need to use social network in communicating and keeping in touch with friends, relatives and family members. Although monks are supposed to keep a distance from worldly desires, they still need to communicate with other people in their everyday life. Those people are an important reference group that can influence monks to use social network. This is in line with the Theory of Reasoned Action suggested by Ajzen and Fishbein (1970). The theory suggests that an important factor to influence people's behaviours is their reference group, such as people close to them including parents and siblings. People's attitudes result from their beliefs. We all are conditioned by society, a place where we live. And we also are influenced by our friends. Those beliefs are collected in our attitudes and this is called "subjective norm".

The research findings also are consistent with many Thai studies, such as that conducted by Natthanan Promma (2015) on factors affecting health of consumers in Bangkok. The study found that the factor of perceived ability in controlling behaviours and the factor of subjective norm affected people's intention to buy healthy foods. Another study was conducted by Puangphet Siriod (2015) on factors affecting consumers' behaviours in buying second-hand goods at weekend markets. The study, on the levels of opinion involving the intention to buy, found that consumers placed much importance on the factor of general attitude ($\bar{X}$ = 4.98). This was followed by the factor of perceived control of behaviour ($\bar{X}$ = 4.69), and the factor of subjective norm ($\bar{X}$ = 3.79).

Less influential factors affecting the intention to use social network are perceived ease of use, which got the standard regression coefficient of 0.235, and perceived usefulness, which had the standard regression coefficient of 0.123. The finding was in line with the Technology Acceptance Model (TAM), which was suggested by Davis (1989). The theory states that two important factors that influence people's intention and behaviour in accepting technology are: 1. Perceived usefulness, which refers to

the degree of an individual's confidence in using that particular technology to help them increase the efficiency of their work, which in turn affects their use of technology (Agarwa and Prasad, 1997; Chau, 1996; Igbaria et al, 1995); and 2. Perceived ease of use, a factor that involves the degree to which a person believes that using a particular system would be free from effort. That means only little effort is used in using technology, as it is easy for learning and using. This affects the factor of perceived usefulness and intention of the users of that particular technology.

Also, it was found that the factor of perceived ability to use technology had influence on the intention to use social network at the least, with the standard regression coefficient of 0.108.

Conclusion

This research study on "Factors Predicting Intention to Use Social Network among Buddhist Monks in Bangkok" aims at studying factors that can be used to predict the intention of monks in using social network sites. The study found that subjective norm is the most influential factor affecting the intention of monks in using the social network. This is followed by perceived ease of use, perceived usefulness, and perceived ability to use technology, which is the least influential factor.

Post-research suggestions

1. The reference group has a high degree of influence over the intention of monks in using social networks. So, monks should be encouraged to use the service within their circles in order to help strengthen their groups, which could lead to further development of the monastic institution and Buddhism as a whole.

2. The perceived usefulness of using social networks is among the least influential factors affecting the intention of monks in using social networks. This may be because monks generally are unaware of the benefit or need to use the online social network. In fact, the monastic rules encourage Buddhist monks to avoid entertainment media that may arouse worldly desires. However, there should be efforts to point out the benefits of using social networks among Thai monks as a way of communication. This constructive use of the social network certainly will benefit the spread of Lord Buddha teachings about "dharma" (universal truth), in a way that is consistent with today's social condition and communication behaviour of the lay people.

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Continuing Professional Development of Modern Regulators: Innovation and Discovery in Program Approach

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Abstract

The impacts of not establishing and maintaining a Continuing Professional Development (CPD) program can be particularly disruptive for regulatory agencies. These impacts can include: knowledge decay, de-skilling, inconsistent work practices, and ineffective regulatory decisions, all of which affect the ability of agencies to deliver public value. CPD is an important element for modern regulators to maintain their capability to perform regulatory functions. However, generally speaking, CPD does not receive the same level of attention and resourcing (agency commitment) when compared to the other key staffing functions such as recruitment (initial and promotion) and training (induction and mandatory). This situation can arise due to a range of factors including, but not limited to: complex operating environments, funding and resourcing imbalances, and shifting government priorities. The design and delivery of CPD needs to be informed by organizational and cultural factors in order that tangible benefits can be maximized. Moreover, as workforces become increasingly diverse (staff roles, skills and demographics) and disparate (virtual, remote and flexible) there is an increasing need for CPD programs to be customised; innovative (integrated, contemporary, and best practice); and resource efficient. This paper considers how regulatory agencies, operating across different domains (economic, environmental, social and hybrids) and regulating different commodities have developed their CPD programs. The aim of this paper is to establish whether, and/or to what extent, innovations and discoveries have been incorporated. It is anticipated that the findings will be of interest to regulatory agencies, regulatory staff, and the regulated community, all of whom have an interest in regulatory excellence.

Keywords: Induction, law enforcement, learning, recruitment, induction, regulation, regulatory capability, teaching, training

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Introduction

Regulation is an important tool that governments use to create a well-functioning society by providing the rules and frameworks needed to achieve social, economic and environmental policy objectives (OECD 2014). It is the responsibility of regulatory agencies to ensure compliance with those rules and regulations. To do this they need to maintain stellar competence (Coglianese 2015). While there are a number of regulatory roles, it can be argued that the compliance inspector is one of the most recognisable. The inspector's role involves conducting on-site inspections and making statutory decisions which affect people's lives – it is a role of power and responsibility. To fulfil that role effectively, inspectors need to develop and maintain a complex, and particular set of knowledge, skills and aptitude which are adaptive to a dynamic operating environment.

Continuing Professional Development (CPD) enables continuous improvement and helps preserve organisational knowledge. This is largely done at an individual level as people share the knowledge they have acquired in the context of formal learning and development activities where that knowledge has been legitimized as organisational knowledge. CPD is an ongoing, multi-faceted activity; a continual striving for, achieving and renewing of learning and development goals (Friedman 2012, p.14). CPD for all staff, particularly professionals, helps keep their knowledge and skills up to date, as well as contributes to their career progression and advancement. For regulatory agencies CPD offers a cost-effective way to establish and uphold high and consistent standards. It enables agencies to maintain the 'competencies that are essential for effective regulatory administration' (ANAO 2014, p.24). However, CPD generally speaking does not receive the same level of attention and resourcing (agency commitment) in regulatory agencies when compared to the other key staffing functions such as recruitment (initial and promotion) and training (induction and mandatory) (Pink 2016). The impacts of not establishing and maintaining a CPD program can be particularly disruptive and lead to knowledge decay, deskilling, sub-optimal work practices, inconsistent regulatory decisions and loss of confidence.

There are a range of reasons the implementation and maintenance of an ongoing CPD program can be challenging for regulatory agencies. These include complex and dynamic operating environments, changing governments, insufficient funding or resources, competing operational priorities and/or differing views about the role and function of a regulator. Whatever the reason, the impacts can be harmful and create significant challenges for regulatory agencies to meet community expectations by effectively delivering on their legislative remit.

In earlier research Pink and Hudson (2016) examined the question of regulatory capability through the lens of the Environment Protection Authority Victoria Authorised Officer Induction program. Regulatory capability was identified as comprising three elements: recruitment; initial training (induction); and continuing professional development (CPD). The focus of this paper is CPD for regulatory professionals, and how it has been developed or modified, across different regulatory agencies, whose responsibilities are located within and across economic, social, environmental and hybrid settings and domains, Drawing on the authors' experience developing and implementing CPD programs in Australian regulatory agencies, three

case study agencies have been selected: the Australian Public Service Commission (APSC); the Victorian Commission of Gambling and Liquor Regulation (VCGLR); and the Environment Protection Authority Victoria (EPA Vic). The case studies consider the reasons for implementing CPD, the approach taken, and whether any innovations and discoveries were made. It will be argued that irrespective of the different domains and industries regulatory agencies operate in, the importance of ongoing CPD cannot be over-stated.

Continuing Professional Development (CPD)

CPD is a 'structured field of knowledge and practice' (Friedman 2012, p.29) that plays an important role in a well-managed organisational capability strategy. CPD enables knowledge and skills to be continually developed and maintained as organisations adapt to their operating environment. It plays a vital role in improving workplace performance and morale; as well as building an organisation's professional reputation (CPA Australia, n.d.). While CPD is a structured approach, it can incorporate a mix of formal and informal learning activities ranging from workshops, seminars, conferences through to reading groups, professional memberships and brown bag sessions.[1]

As a multi-dimensional learning and development activity, there are a number of ways to consider CPD. For example, CPD can be:

- a way to maintain professional registrations e.g. real estate agents, accountants, legal professionals, and allied health professionals,[2]
- a formal organisational learning and development programs (whether delivered externally or internally), and/or
- thought of as an expectation placed on members of a profession to actively engage in self-directed learning, after their initial training, by taking a planned and structured approach (CIPS, n.d.) to monitoring and recording the capabilities they develop through their work, both formally and informally (Jobs.ac.uk).

For the purposes of this paper, the authors have adopted Friedman's description of CPD:
'The systematic maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for the execution of professional and technical duties throughout the individual's working life' (2012, p.9).

Regulatory agencies – type and focus

Before considering the specifics of CPD in regulatory agencies, it is important to acknowledge that there are different types of regulatory agencies. Equally, regulatory agencies have different primary, but overlapping, foci and objectives.

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[1] 'Brown bag sessions' are an informal meeting, training, or presentation that happens in the workplace during lunch time where participants bring their own lunch.
[2] See for example Nursing and Midwifery Association of Victoria 2016, Occupational Therapy Board of Australia 2013.

Regulatory agencies fall into three broad types: protection, commodity, and hybrid. Protection agencies include those that are involved in protecting: consumers, worker safety, and the environment.[3] Commodity agencies include those that are involved in regulating specific: commodities (e.g. financial markets), sectors (retail) and industries (construction). Hybrid agencies include those that are involved in delivering all three parts, or elements, of public service activity; i.e. policy, programmatic and regulatory (Pink and Marshall 2015).

The primary focus and objectives of regulatory agencies, in the first instance, tend to be aligned with economic, environmental, and social drivers. However, to consider it as a binary choice is an oversimplification. The reality is that regulatory agencies in fact have primary, secondary and in some instances tertiary drivers. For example, significant investment in the form of an infrastructure development (for a project) has economic benefits; however, it could result in environmental impacts (as part of developing the site), and social impacts (jobs creation and disruption to communities).

In terms of the case studies that follow, the case study agencies could be conceived of thus:

- APSC – an agency that has developed a regulatory CPD program for federal Australian Public Service agencies that engage in and span all three regulatory domains: economic, environmental, and social regulation – so a hybrid system;
- VCGLR – an agency engaged in regulation that is primary social, and secondary economic, with no specific environmental aspects; and
- EPA Vic – an agency engaged in regulation primary (and largely) environmental, but with secondary social, and tertiary economic.

Case Study 1: Australian Public Sector Commission (APSC)[4]

In the APSC Case Study CPD has been approached from the perspective of a formal learning and development program provided by an external professional body.

Background

The Australian Public Service (APS) is the Australian federal civil service. It has a workforce exceeding 155,000 staff which perform three core activities: policy, programs,[5] and regulation. The APS is organised into 112 agencies and, like many public or civil services around the world, encompasses economic, social and environmental portfolios. Across the three portfolios, there are 18 job families and a number of different professional occupations, each with their own cultures and sub-cultures.

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[3] See Pink and Marshall (2015) for a more detailed example of how these three broad types present for environmental regulators.

[4] Case Study 1 draws heavily upon the earlier work of Dahlstrom and Pink (in press).

[5] Programs or Program Delivery is perhaps more universally referred to as commonly referred to as programs, constituting the three broad core functions of the APS: policy, programs and regulation.

Although regulation is identified as one of the three core activities performed by the APS, only 11.3% of APS employees perform work classified as 'Compliance and Regulation' (APSC 2016). In 2015 the Secretaries Board[6] of the APS, confirmed that 'Regulation' would remain as a core skill, and expanded it to include 'Regulatory practices and frameworks' at the management expertise level (APSC, 2015). As a result, the Australian Public Service Commission (APSC), a central agency within the Prime Minister and Cabinet Portfolio, was tasked with developing a whole of government program to develop regulatory capabilities across the APS. Oversight of the program development was provided by several working groups at senior executive officer and practitioner levels.

Approach to CPD for regulatory staff

Introduction to Better Practice Regulation (IBPR)

As an initial step, in late 2015, the APSC developed the *Introduction to Better Practice Regulation* (IBPR) program as a core skill required for all APS employees. The target audience was staff who were either newly recruited to the public service or were transferring from policy or program work to a regulatory function. This was an introductory program and, consistent with the prevailing political climate, had a strong de-regulation focus. The IBPR was rolled out in early 2016, and almost immediately was followed up with the *Regulatory Practitioners and Managers* (RPM) program.

Regulatory Practitioners and Managers (RPM)

The RPM straddled the intermediate and advanced level, and had greater focus on regulatory implementation and regulatory delivery (OECD, 2014a; 2014b). As such the target audience were identified as senior practitioners, team leaders, mid-level managers and resource allocators.

The development of the RPM curriculum and content was a collaborative effort between two professionals from different disciplines: training development and regulation. A half-day design workshop, involving 25 participants representing more than a dozen agencies (operating across the economic, social, and environmental domains) was conducted, with differing priorities afforded to policy, programmatic, and regulatory activities. This design workshops established the 'must haves', that is the learning outcomes to be achieved, in order that there was a worthwhile return on investment for the development of staff undertaking regulatory activities.

As it transpired both the IBPR and RPM were developed in such a way that the curriculum and delivery were highly interactive. In the case of the IBPR, as an introductory program it had an e-learning component and pre-program self-directed learning component, prior to the two-day face2face component. The RPM did not include a dedicated e-learning component, however the IBPR e-learning module was made available to participants with its completion being optional.

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[6] Secretaries here reflect the Head of Agency, or Chief Executive Officer level equivalent.

Case Study 2 examines the experience of the VCGLR as a newly established regulatory agency, and its approach to implementing and establishing a tailored CPD program.

Case Study 2: Victorian Commission of Gambling and Liquor Regulation (VCGLR)[7]

Background

In 2012, the Victorian Commission for Gambling and Liquor Regulation Australia (VCGLR), a social/economic regulatory agency, was established through the combining of Victoria's liquor and gambling regulatory agencies.[8] The operating environment brought with it a range of complex and wicked problems,[9] such as reduced staff and funding, staff engagement and cultural issues and technology issues (VAGR 2016).

As a newly formed agency, the VCGLR developed The Harmonisation – Training Framework (the Framework) (VCGLR 2013) to provide a road map for the training requirements of new inspector recruits. While the Framework noted the magnitude of the training required for the existing inspectorate, their learning and development needs were not included. In 2016 an external review, Regulating Gambling and Liquor (VAGR 2016), was critical of the VCGLR's effectiveness and capability as a regulator. The need for 'a training team with a dedicated senior training officer' (VCGLR 2016a, p.33) to deliver training to all inspectors and investigators was determined. As a result, a learning and development professional from another regulatory agency was engaged to design, develop and deliver the Inspector Training Program.

Approach to CPD for regulatory staff

The Inspector Training Program (ITP) is part of the Compliance Division Learning and Development Program[10] 2016-18 (VCGLR 2016c). Its purpose is to provide 'the foundation capabilities VCGLR inspectors need to be appointed[11] and to maintain that appointment' (VCGLR 2016c, p.5). The ITP is tailored to the VCGLRs particular culture and context and also leads to a national qualification. Table 1 illustrates the relationship between the ITP, tailored to the VCGLR, and meeting the requirements of the qualification.

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[7] Case Study 2 reflects the work (recently completed and underway) of Hudson and VCGLR management.

[8] Responsible Alcohol Victoria (RAV) and the Victorian Commission for Gambling Regulation (VCGR)

[9] Wicked in this context is taken to mean 'highly resistant to resolution'.

[10] The Compliance Division Learning and Development Program incorporates three separate, and interconnected, program activities: Inspector Training Program, Investigations Training Program, Leadership Development Program.

[11] Appointed in this context means to be authorised with statutory powers.

Table 1: ITP workshops learning activities and national qualification

ITP workshops and learning activities	Unit of competency in national qualification	Assessment evidence
On-the-job learning (coach/mentor) Corporate Orientation	Uphold and support the values and principles of public service	Values and Principles assessment activity Communicating as a Regulator workshop
Communicating as a Regulator workshop	Use advanced workplace communication strategies	Collected during workshop
Corporate orientation Evidence and Investigations workshop Contemporaneous Notes Video Learning Course Liquor workshop Gambling workshop Casino workshop On-the-job application	Maintain workplace safety	Powers and Functions questionnaire Evidence and Investigations workshop evidence Contemporaneous Notes Video Learning Course Evidence Portfolio (real work product) Team Leader Report
	Apply regulatory powers	
	Undertake inspections and monitoring	
	Receive and validate data	
	Assess compliance	
	Act on non-compliance	
Interviews and Statement Taking workshop	Gather information through interviews	Collected during workshop
Give Evidence and Court Preparation workshop	Give evidence	Collected during workshop

The ITP includes a number of pedagogical dimensions, as a:

- *blended learning program* – incorporating a range of delivery modes and learning experiences (Griffith University 2010) e.g. face-2-face workshops, self-directed learning, video learning, on the job learning and competency based assessment tasks (VCGLR 2016d). To increase the likelihood of influencing inspector practice and the transfer of learning, that is the inspector's 'knowing-in-action' (Friedman 2012, p.59), it was important for the ITP to be as close to the work environment as possible;
- *regulatory learning program* – based on three pillars of knowledge: regulatory, interpersonal, technical (the industry sector/s being regulated); and
- *competency based learning program* – leading to a national qualification.[12]

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[12] The national qualification is the PSP40416 Certificate IV in Government Investigation (Regulatory Compliance). This qualification allows for the attainment of occupational specific competencies for those working in operational roles undertaking government investigation related functions, with a particular focus on meeting the ethical and legislative requirements of the public service.

Two theoretical frameworks were relied on in the design of the ITP:
- experiential learning (Kolb 2000), where learning is seen as an active process of knowledge creation through making sense of and transforming experience, and
- social learning, where learning occurs through the participants' lived social experiences (Wenger 1998) and takes place within the activity and its location (culture and context) (Lave and Wenger 1990).

To strengthen the encoding of long term memories, effortful retrieval (Brown et al 2014) and repetition and variation (Marton and Trigwell 2000) were incorporated through spacing the workshops and learning activities over time and place (Davachi et al. 2010). Delivery of the ITP involved people both internal and external to the agency: external trainers, to expand the inspectors regulatory thinking beyond their routine, agency-focused work; internal content experts, to enable the agency to capture, codify and share its organisation and domain specific knowledge; and internal facilitators, to support the agencies capability to build a solid foundation to manage its learning and development needs and, future state, develop a self-sustaining learning eco-system.

In 2016 a foundation level pilot program, with a mix of new recruits and experienced inspectors, was delivered. Kirkpatrick's (1994) four-stage model of evaluation was used to evaluate the pilot:
- *Level 1 Reaction*: using a five point Likert scale,[13] over 80% of respondents evaluated the ITP pilot as 'very good' to 'excellent'.
- *Level 2 Learning*: all participants successfully completed the ITP pilot with the new recruits being appointed as inspectors, and all participants being awarded a Statement of Attainment for the Certificate IV in Government Investigation (Regulatory Compliance)
- *Level 3 Behaviour*: feedback from managers and team leaders about the participants work practices has been positive with some having been given further merit-based development opportunities
- *Level 4 Results*: the ITP has been incorporated into business as usual. It has been adapted for delivery to the existing inspectorate workforce, approximately 60 participants, (in 2017) to re-establish the foundation skills and knowledge and support a more consistent regulatory approach.

Case study 3, EPA Vic, also took a tailored, in-house approach to developing and delivering its CPD programs, however it is further along the CPD maturity curve.

Case Study 3: Environment Protection Authority Victoria (EPA Vic)[14]

Background

The Environment Protection Authority Victoria (EPA Vic) is the third oldest environmental regulation agency in the world, having been established in 1971. As

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[13] Choices being: Excellent, Very Good, Good, OK, and Not OK.

[14] Case Study 3 draws upon the earlier work of Pink and Hudson (2016).

such it has operated continuously for over 45 years and has been subjected to numerous reviews and enquires[15] which have shaped its approach to CPD.

EPA Victoria (EPA Vic), in 2009, was in a similar position to the VCGLR having been the subject of a critical external review. In 2010 an independent review, the Compliance and Enforcement Review (Krpan 2011), was commissioned to provide a blueprint for how EPA Vic could become an effective, modern environmental regulatory agency. The Krpan Review made 119 recommendations including the need for an ongoing training program for inspectors as well as improving the visibility of 'the organisation's technical experts…in the community and the organisation itself' (Curtin 2015b).

Approach to CPD for regulatory staff

Authorised Officer Training and Re-authorisation Program (AOTRP)

In response to the Krpan Review in 2012/13 EPA Vic developed and delivered the Authorised Officer Training and Re-authorisation Program (Hudson 2013). This was a tailored learning and development program designed to establish a capability baseline for the agencies regulatory staff and to improve the consistency of the officers' regulatory decision making. The Authorised Officer Training and Re-authorisation Program was also an agent of change for EPA Vic supporting their efforts to evolve, adapt and become a modern environmental regulator. These were some of the reasons for the decision to retrain and reauthorize the existing authorised workforce.

As with the VCGLR's Inspector Training Program, the AOTRP was a regulatory learning program that blended a range of learning modalities with a competency based approach. While it did not lead to the achievement of a national qualification, this approach grounded the AOTRP in the practical application of knowledge and skills in the workplace.

Approximately eighty regulatory officers participated in the AOTRP. While all were authorised, the held a range of roles in the agency: environment protection officers (EPOs), team leaders, managers, investigators, compliance strategists, planning assessment officers and trainee EPOs. The Authorised Officer Training and Re-authorisation Program delivered eighty-four program days in 11 months across face-2-face workshops, eLearning (EPA Vics first), webinars, on the job application and competency based assessment tasks.

It was then modified to become the EPA Vic Authorised Officer Induction Program (the AOIP), 'to provide enough information, practice and on-the job experience so trainees are 'field ready' at the conclusion of the program and can demonstrate their competence to be appointed …under the EP Act' (EPA Victoria 2015a, p.5).

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[15] The most notable and relevant ones in terms of CPD are: Victorian Government 2010, Krpan 2011, and VAGO 2012).

Expertise Framework Program

Around the same time, EPA Vic implemented *The Expertise Framework Program*[16] (the Framework) as another part of its commitment to providing continuing development for its regulatory and scientific staff (EPA Vic., n.d.). The purpose of the Framework is to 'appoint staff recognised as leaders in the areas of air quality, inland water, marine water, waste, landfill, land and groundwater, and odour as EPA's 'principal experts' (EPA Vic n.d.).

The responsibilities of a Principal Expert include dedicating 50% of their time to sharing their expertise and knowledge: to inform the agencies decision makers, to support their peers and colleagues, and to mentor the next generation of experts. To succeed in the role, it was determined that scientific capability alone was not enough. With the role of the Principal Experts being to share their knowledge and help others to develop theirs (Curtin 2015b), leadership and communication skills were considered equally important capabilities.

A four-stage process for appointing the Principal Experts was implemented:
- Stage 1 involved collecting nominations from interested staff members who believed they were suitably qualified, this needed to be accompanied with their managers' endorsement.
- Stage 2 saw the applicants' knowledge tested in their specialist environmental area, based on the results applicants progressed to the next stage.
- Stage 3 was a formal recruitment process where their 'leadership, professional conduct and knowledge-sharing capabilities' (EPA Vic n.d.) were evaluated.
- Stage 4 was based on the recommendations; EPA Vic's senior management team appoint the Principal Experts. Appointments are reviewed on a bi-annual basis.

Discussion and analysis

The APSC, VCGLR and EPA Vic provide examples of three different approaches taken by regulatory agencies to CPD. The APSC delivered a formal program aimed at addressing a common need across multiple agencies with regulatory function, but sits outside those agencies. The VCGLR and EPA Vic have both been the subject of external reviews critical of their regulatory capability and effectiveness (VAGR 2016, Krpan 2011). Both agencies have responded by implementing in-house CPD programs tailored for their particular culture and context in order to maximise the tangible benefits. Each of these are now discussed in turn:

APSC

The IBPR and RPM have been delivered to over 300 participants with extremely favourable feedback based upon pre-course and post-course comments and self-assessments. These programs have demonstrated their utility, especially across mixed-agency, cross-jurisdictional groups, where increased co-regulatory and partner-regulatory activity has been required. The absence of a regulatory doctrine presented

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[16] For additional information on the Framework see http://www.epa.vic.gov.au/about-us/expertise-framework-program

challenges in establishing the skills and knowledge to be included in the curriculum. During the design phase, assumptions were made about the participant's self-identification as regulatory professionals, however it was found that up 25% did not readily identify as regulatory professionals despite occupying a role considered to be part of the APS regulatory capability set.

VCGLR

The lack of a CPD program for regulatory staff has been a significant contributor to the criticisms of the agencies effectiveness as a regulator and its capacity to deliver public value (Moore et al 2004). As discussed, this may have been due to the complexity of the operating environment the VCGLR found itself in which meant that it wasn't until 2016, that the ITP was implemented. It may also be a reflection of the different ways that CPD can be understood thereby influencing the authors of the 'Harmonisation – Training Framework' (2013) to focus on new recruits, in the belief that CPD is an activity which takes place after professionals have completed their initial qualification. However, CPD can also play a valuable role in re-establishing and maintaining foundation skills and knowledge, to establish a baseline standard and to provide a solid platform on which extension development opportunities can be made available.

EPA Vic

The Authorised Officer Training and Re-authorisation Program and the Expertise Framework Program have both played a role in EPA Vics development as a modern environmental regulator with a strong information sharing environment (ANAO 2014). The focus of the Authorised Officer Training and Re-authorisation Program was on re-establishing the skills, knowledge and aptitudes needed by its regulatory professionals in order to be authorised. Whereas the focus of the Expertise Framework Program was on explicating and making available its scientific knowledge, albeit a subset of regulatory practitioners. When specific sub-sets of an agencies regulatory staffing become the focus of CPD care needs to be given to not inadvertently disenfranchise other sectors. Both programs have played an important role in building the agency's capability and enabling it to locate and make available the regulatory and scientific 'information and knowledge that is in people's heads as it were, and that has never been explicitly set down' (Koenig 2012, para.7).

General observations across the three case studies

Formal CPD programs play a valuable, if not indispensable, role in supporting regulatory agencies strategies to maintain and extend staff skills and knowledge, establish consistent standards, reinforce desired work cultural practices and make conscious the informal learning practices staff engage in.

When the value proposition of CPD is overlooked, agencies can find themselves in a negative capability spiral that compromises their integrity and capacity to establish an effective authorizing environment. This then leads to escalating community concerns and increased government scrutiny, which further diminishes the authorizing environment, and so on. It can be the case for regulatory agencies, as with EPA Vic and VCGLR, that it is not until there is a 'burning platform' (i.e. an external review)

that agencies are able to 'pay attention' and re-commit to the ongoing importance of investing in CPD program for their regulatory staff. Were regulatory agencies to apply the same 'rigour and attention as any other management task' (APSC 2003, p.4) to CPD the disruptions they experience when capability decline could be mitigated.

Much of the understanding and discussion about CPD assumes a professional discipline or 'professional life' that 'requires continued adherence to codes of conduct both within and beyond the workplace' (Law Careers, n.d.).[17] However, regulatory practice may be better regarded as an emergent profession[18] that is yet to adopt a regulatory doctrine. This lack of a regulatory doctrine presents as a significant contributor to the varied and inconsistent ways that regulation is understood across regulatory agencies, and as such is worthy of further research.

A common theme emerged across the three programs outlined in the three case studies. Notably, each involved a training development professional working with regulatory professionals to design, develop and deliver the programs. It is through the synergies of these two professions bringing their respective bodies of knowledge together: the training development professional with the instructional design/learning experience design expertise; and the regulatory professional to provide the subject matter content expertise. This highlights the organisational knowledge potential that this style of learning and development programs can offer regulatory agencies, and itself is and aspect which is worthy of further research.

Conclusion

The value of CPD programs for regulatory agencies has been explored in this paper. To do this, the lived experiences of three different regulatory agencies were examined: the APSC which is focused on whole-of-government, that is all federal government agencies that perform a regulatory function; the VCGLR which is reinvigorating itself as a modern regulator and is in the early stages of rebuilding its CPD programs; and the EPA Vic which now has a mature CPD program that includes an induction program and ongoing training for authorised officers along with the Expertise Framework Program. The risks of not maintaining capability can be particularly disruptive for agencies leading to increased criticism and external reviews. In the case studies presented, CPD has been shown to play a pivotal role in the development and maintenance of the capability necessary for agencies to deliver quality regulation.

An ongoing commitment to CPD provides agencies with the opportunity to develop a state of maturity that goes beyond a foundation level approach into providing intermediate and advanced learning and development opportunities for their staff. An ongoing commitment to CPD can open the way for agencies to achieve stellar competence and regulatory excellence (Coglianese 2015).

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[17] http://www.lawcareers.net/Solicitors/SolicitorPracticeAreas/Professional-discipline.
[18] For more information on New Zealands experiences with central and regional government, see Manch, Mumford, Raj, and Wauchope (2015).

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The Dual-Use Conundrum and UNSC Resolution 1540: Prospects and Challenges for Regional Governance and Cooperation in Southeast Asia

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Abstract

Southeast Asia is a significant player, potentially as both consumer and producer, in the development and trade of WMD materiel. The availability and accessibility of WMD materiel or CBRN weapons have lost its exclusivity to government official use and military authorities thus exposing Southeast Asia to grave threats and damages to regional peace and human security. The dual-benefit argument where nuclear energy is seen as a solution to the dwindling energy resources needed for continued growth and development exacerbate the illicit and political nature of WMD proliferation. The paper examines the interaction between the UN Security Council (UNSC) Resolution 1540 and its implementation or non-implementation by Southeast Asian countries by using history and theories of international relations and international law. It seeks to gather evidences for why some countries in the region are constrained in complying with the obligations while others have successfully incorporated these into their own state practices. It will also attempt to conceptualize the nature of regional cooperation and norms of consensus-building created by this particular case of harmonizing Southeast Asian state practices with Resolution 1540 and draw on lessons and policy implications on regional geopolitics, human security, international law and technology.

Keywords: proliferation-sensitive dual-use technologies, WMD materiel, Resolution 1540, regional governance and cooperation, Southeast Asia

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Introduction

Southeast Asia, is a potential supplier, transshipment/transit, assembly point and destination of dual use goods due to its porous borders and busy shipping lanes. With increased trade in the region, the risk of proliferation of sensitive dual-use technologies rises. Such can be used for the development of weapons of mass destruction and might fall into wrong hands due to lack of comprehensive strategic trade controls. The dual-use conundrum in Southeast Asia, does not just concern the dual end-use of sensitive items. It can hardly be separated from the context of its proliferation and the regional risk factors that makes the creation of effective governance and cooperative structures to regulate the flow as well as the unauthorized access of these powerful and destructive dual-use goods very challenging. The fact that the availability and accessibility of these dual-use items have lost its exclusivity from government and military official-use meant that the small states of Southeast Asia are increasingly exposed to grave threats and damages.

This conundrum of confusion in regard to dual-use goods having the potential to be used for both harmless and harmful ways create human security challenges that highlights the capability limits of a single state to comprehensively ameliorate its proliferation and constraining it not to fall into the hands of individuals or groups with terrorists or malicious intents. Imagined or realized threats of CBRN WMDs violate two key dimensions of human security, that is, freedom from fear and freedom from want and it can also threaten security in the interrelated areas of economic, food, health, environmental, personal, community. A threat to one of these dimensions of human security often spread to others, that these threats cross national borders and can profoundly contribute to underdevelopment if left unchecked (Tigerstrom, 2007, p.51). Addressing this common security challenge requires regional cooperation because in an increasingly integrated regional economy, trade in dual-use items cannot be regulated by one state alone. Understanding areas of vulnerability, identifying key manufacturing sectors, regulating the burgeoning online and underground markets where illicit trade of WMD materiel exists, and the direction of growth in dual-use commodities is seen to be key areas to drive regional efforts and initiatives (Lieggi, 2016, p.73).

This paper examines the implications of Resolution 1540 in the governance and cooperation of Southeast Asian states to address proliferation problems of sensitive dual-use technologies and items to non-state actors. It proceeds in seven parts. The first part discusses the political and security context of WMD proliferation and terrorism. The second part provides the brief overview and the normative agenda of Resolution 1540. The third part examines the implications of Resolution 1540 for regional governance and cooperation in Southeast Asia as well as it details the prospects and challenges of the resolution in terms of the political, economic and security contexts of the region. The fourth part explains the slow yet promising progress of Southeast Asian states in complying with Resolution 1540 using the IL-IR-human security nexus of constructivism. The fifth part assesses the consequences of Resolution 1540 in the broader dynamics of maritime interdiction of dual-use goods and UNCLOS 1982. Parts six and seven provide the analysis and conclusion.

I. The Political and Security Context of WMD Proliferation: Evolving Terrorism and Emerging Dual-Use Technologies

The proliferation of weapons of mass destruction, hereinafter collectively referred to as CBRN or chemical, biological, radiological and nuclear WMDs, raw materials or *precursors* and its various delivery systems pose grave threats to international peace and security. Increasing availability through technological advancements as well as accessibility through illicit transactions, black-market trade and other clandestine operations coinciding with weak enforceability of international frameworks and mechanisms for controlling proliferation of WMDs escalate the likelihood of these materials falling into the hands of terrorist networks and other non-state actors with criminal intents. Failure to safeguard at-risk WMDs potentially unleashes its large-scale and indiscriminate destructive features resulting in unjust and unscalable damages to human and environmental security as well as far-reaching political and development consequences which amelioration is often beyond the capability of individual states. Accidents and unintentional dumping of CBRN WMDs on top of existing stockpiles, the expansion of research and development concerning potential civilian and commercial-uses of previously military-exclusive CBRN items or dual-use technologies and the increasing disposition of terrorist networks to acquire WMDs constitute risk factors that can be reasonably contained and prevented.

While the credibility of WMD terrorism has been challenged and claimed to be merely fabricated hype and imagination, the reality of massive devastation and catastrophic out-turn when terrorist and criminal groups get hold of WMDs is substantive and necessitates concerted vigilant attention from all states. Allison (cited by Intriligator and Toukan in Katona, 2004 p. 69) considers the threat posed by WMD terrorism as strikingly different from traditional deterrence such as when two states, say the U.S. and Soviet Union, lock it down in a mutually assured destruction type of security dilemma. With terrorists' taking abode in clandestine locations, their threats and/or actual consummation of terror becomes free from retribution and reprisals. Vigorous calculations and intelligence to establish whether WMD terrorism can be regarded as real and worthy enough to be a national security concern for all states is not as compelling as the definitive and massive devastation that will occur once lax and neglectful management of this security issue takes primacy over watchfulness and sensible vigilance. In this regard, not only the terrorists must be blamed but also the international community for failing to take seriously the legitimate threats posed by WMD terrorism and for losing sight of its responsibility to prioritize the prevention of terrorists groups from accessing and acquiring CBRN WMDs.

The nexus between WMDs and terrorism has been aggravated and made more complex by the emergence of dual-use technologies. These dual-use items and goods refer to tangible and intangible materials (knowledge, technical know-how, expertise) that have legitimate commercial and peaceful applications but can also be exploited for the illicit production of CBRN WMDs. Here, despite conventions in regard to defining and classifying dual-use goods and technologies, the problem of delineating between civilian/commercial and military/CBRN WMDs and the perplexity of distinguishing which dual-use technology will be used for constructive and destructive purposes add to the conundrum of confusion. Both legitimate and illicit trade in dual-use goods and items have contributed to the weakening of barriers making it more impossible to rule out that both state and non-state actors with terrorist

and nefarious intents will step up their game from using conventional weapons to CBRN WMDs. However, there is yet another angle, well-articulated by Finlay, Bergenas and Mufti (2006), that cautions us to refrain from approaching the dilemma as merely an assessment of supply and demand factors. Dual-use technologies not only pose proliferation risks because of the rapid growth of dual-tech industries that manufacture, produce and distribute proliferation sensitive items but they also impact national development as well as both traditional and non-traditional human security priorities especially when embedded in policies pertaining to strategic trade controls and management that though reckoned as indispensable to non-proliferation, are perceived to threaten legitimate trade and commerce as well as hamper economic growth.

II. United Nations Security Council Resolution 1540: Brief Overview and its Normative Agenda

In recognizing the need to construct international and national governance and cooperative structures to control the spread of CBRN WMDs and dual-use technologies to state and non-state actors bent on acquiring WMDs for terrorism purposes, the United Nations Security Council (hereinafter referred to as UNSC) unanimously passed Resolution 1540 where compliance by all states is mandatory. The normative importance of Resolution 1540 is in the consciousness that the amelioration of WMD proliferation is often beyond the capability of a single state and that global cooperative governance have to start from a common ground aimed at integrating and harmonizing efforts required to build frameworks and regulatory mechanisms that uphold the rule of law and human security principles in addressing the problem. Resolution 1540 does not supersede existing non-proliferation international treaties and multilateral export control regimes that govern efforts to combat proliferation[1]; rather, it complements non-proliferation regimes by enhancing international and national non-proliferation and anti-WMD terrorism efforts through its legal effects. By honoring their obligations to Resolution 1540, states commit to an enabling and enforceable mechanism that allows for broader yet more focused efforts, that is the resolution covers all types of CBRN WMDs, it extends the mandate beyond the state and explicitly identifies unfriendly non-state actors and their activities, motives and intents to leverage the power of CBRN WMDs to advance their political and social objectives (Scheinman in Scheinman, 2008, pp. 2-4).

Wetter (2009, p.3) in a research report published by SIPRI argues that the "failures of non-proliferation have occurred partly because of weaknesses in the control of the trade in dual-use items." Key to this is the establishment of enforceable national laws and procedures to prohibit proliferation of CBRN WMDs to sensitive destinations and non-state actors as well as to provide legal fangs to prosecute and punish offenders and violators. Along these lines, Resolution 1540 places at the core of its salient provisions obligations among all states to "enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery…" (UN Office for Disarmament Affairs, 2007). Thus, Resolution 1540 is a responsive tool to one of the requirements for

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[1] Examples are Non-Proliferation Treaty, Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, and the Convention on the Prohibition of the Development, Production, Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction. See Lawrence Scheinman.

comprehensive non-proliferation strategies and provides for the gap created by issues of non-compliance with international treaties and agreements. To avail of the legal force provided by Resolution 1540 through invocation of Chapter VII of the UN Charter[2], states are obliged to penalize and bring export control violators to justice (Wetter, 2009, p.4). Concomitant to the enforceability of Resolution 1540, the 1540 Committee was created in order to assess the extent of compliance with the obligations set forth in the resolution (Early, Nance and Cottrell, 2017, p.96). States submit national reports to the 1540 Committee detailing the scope and level of their compliance.

It is to be noted however that the establishment of strategic trade controls is not unique to Resolution 1540. In fact, there are other multilateral export controls regimes such as the Australia Group, the Missile Technology Control Regime (MTCR), the Nuclear Suppliers Group (NSG) and the Wassenaar Arrangement on Export Controls. However, the implementation of Resolution 1540 through national laws provides states the necessary legal basis to strengthen institutional, regulatory and technical responses so that control in dual-use technologies and items becomes an effective measure for non-proliferation and at the same time does not hamper legitimate trade and commerce that is essential to economic development (Kassenova 2011). While the normative, legislative and practical bent of Resolution 1540 have been perceived to be logical and consistent with the objectives of existing non-proliferation and export regimes as well as the compatibility of the resolution's substance with national priorities, full and comprehensive implementation of member states have been met by both technical and political constraints. Evolving trade patterns that increasingly involve more state and non-state participants directly and indirectly interacting, i.e. middlemen, brokers, transshipment points (Acton in Harris, 2016, p.28), the intensification of globalization and trade interdependence coinciding with intractable illicit trade networks that facilitate the transfer and shipment of dual-use technologies shape and re-shape proliferation challenges. Combined with the perception that Resolution 1540 is an outright imposition of Western security priorities impinging on small and developing states' national agendas (Ogilvie-White, 2006, p.6), these challenges result in the lukewarm responses and variegated levels of reception demonstrated by states towards Resolution 1540.

III. The Dual-Use Conundrum: UNSC Resolution 1540 and its Implications for Regional Governance and Cooperation in Southeast Asia

It is commonly argued that Southeast Asia plays an important role in the conundrum of WMD terrorism and in disrupting the malicious proliferation of dual-technologies and items to sensitive actors and destinations (Jones, 2004; Ogilvie-White, 2006; Scheinman, 2009; Kassenova, 2011; Lieggi, 2013). The regional geopolitical, economic and security backdrop as well as complex international developments drive the likelihood of Southeast Asia "becoming the next big provider of proliferation-sensitive dual-use goods and items" (Lieggi, 2013, p.73). While Southeast Asian states have not yet been actively pursuing WMD development, industrial expansion

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[2] By invoking Chapter VII of the UN Charter, Resolution 1540 becomes enforceable on all UN member states. Resolution 1540 is considered by the UNSC as a response to a threat to international peace and security requiring all states to comply lest Article 41 and Article 42 is invoked where economic and diplomatic sanctions for non-compliance with provisions passed under Chapter VII and to take such necessary actions by air, sea or land forces, respectively.

and technological progress consequently transform Southeast Asian states into both consumers and producers of proliferation-sensitive commodities and technologies (Lieggi and Lee, 2015). Continuous growth of the already established trade interdependence and commercial inter-relations turned several states in the region as transshipment hubs and transit points. This development not only increased their vulnerability to possible smuggling, theft and sabotage of proliferation-sensitive commodities but it also signifies that WMD proliferation will coincide with the worsening challenges pertaining to maritime security, trans-border crimes and territorial disputes that have since been pervasive in the region.

The Abdul Qadeer Khan network[3] leveraged on the region's porous transshipment borders, rudimentary and mostly absent export control and strategic trade management systems, lax enforcement mechanisms to punish violators to manufacture, acquire and smuggle proliferation-sensitive items to states and non-state actors carrying out clandestine WMD programs. This often referred to case underscores two realities in Southeast Asia. First, industrialization and technological progress accompanying economic growth strengthen the capability of states to produce and consume sophisticated dual-use technologies is not matched by satisfactory regulatory frameworks and enforcement mechanisms to underpin regional and national governance of WMD proliferation threats. Second, regulating the unauthorized access of proliferation-sensitive materials to the extent that it does not negatively impact legitimate commerce and imperil economic development must go beyond simple pronouncement of acceptance and support for international agreements and treaties. It should be acknowledged that in the dual-use conundrum, trade and both traditional and non-traditional security are interwoven especially given the increasing regionalization and interpenetration of national economies in Southeast Asia. Taking this into account, legal considerations, specifically binding and enforceable statutes should underpin institutional capability and technical resources to establish comprehensive export control and strategic trade management systems that do not hinder economic growth and national development (Kassenova, 2011, p. 3).

III.A. Political, Economic and Security Implications: Prospects and Challenges of Resolution 1540 in Southeast Asia

Political Implications

The dual-use conundrum in Southeast Asia does not just concern WMD terrorism and the proliferation of dual-use commodities to identified sensitive non-state actors and destinations. It can hardly be separated from the context of its proliferation and the regional risk factors that make the creation of effective governance and cooperative structures challenging. Ogilvie-White (2006) provides a comprehensive analysis in regard to the political nature of Southeast Asian states' misgivings and lack of satisfactory efforts to comprehensively implement Resolution 1540. Participation through full ratification/accession in existing international treaties and agreements such as the NPT, Chemical Weapons Convention (CWC) and the Biological and Toxins Weapons Convention (BTWC) also showed little progress. The remarkable progress among Southeast Asian states in terms of non-proliferation and counter-

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[3] The A.Q. Khan network masterminded and operated the international nuclear smuggling operation that supplied Libya, Iran and North Korea with proliferation-sensitive dual-use technologies. It also played a critical role in Pakistan's WMD program.

terrorism efforts can be seen by their full commitment to the Southeast Asian Nuclear Weapon-Free Zone (SEANFWZ), a useful yet non-binding means of addressing state-to-state proliferation (p. 7). At the heart of the problem, Ogilvie-White considers, are the traditional suspicions accorded to extra-regional non-proliferation and export control regimes – 1) barriers to economic development; 2) heavy-handed imposition of Western security agendas; 3) cultural and social insensitivities of global forums and mechanisms (p.20). Resolution 1540 should be recognized by Southeast Asian states as a mechanism responsive to the political constraints occurring with the global governance of proliferation. The prospect of implementing Resolution 1540 obligations to achieve national governance of WMD terrorism and proliferation threats center on the recognition of sovereignty of each state in the region.

Economic Implications

The rudimentary and weak strategic trade management and export control systems expose Southeast Asia to grave threats and damages posed by WMD terrorism and the proliferation of sensitive dual-use technologies. Lieggi (2013) listed the key sectors which growth raises the risks of proliferation: nuclear energy, oil and gas, chemicals, aerospace, electronics, automobile and manufacturing. Increasing trade and industrialization in Southeast Asia makes the region a proliferation hub thus a potential weak link in the global efforts to combat WMD terrorism and proliferation unless the states in the region translate the obligations in Resolution 1540 into opportunities (Kassenova, 2011, p.1). The argument raised is that establishing trade management and control mechanisms do not necessarily impinge on trade and therefore economic development. Instead, full implementation of Resolution 1540 obligations facilitates greater extra-regional trade and commerce particularly in high-technology commodities and items. The spread of non-proliferation norms impelled advanced industrial countries with strong strategic trade management and control systems to have legislations that prohibit trade with firms and countries identified to be engaged in WMD terrorism and proliferation and at the same time encourage trade with trustworthy actors (Kassenova, 2011, p.2).

An important area that has become a source of ideological and philosophical debate concerning WMD proliferation is the security and development divide. This is embedded in the dual benefit argument where nuclear energy is seen as a solution to the dwindling energy resources needed for continued growth and development of Southeast Asian national economies confound the political and security challenge posed by proliferation concerns. The continued economic and demographic growth of Southeast Asian countries necessitates additional sources of energy to satisfy growing demands. It has been estimated that energy demand will grow at an average of 4.4 percent relative to the 1.8 percent growth in world demand per annum until 2035 (Finlay, Bergenas, Mufti, 2013). The problem of WMD proliferation is lodged in the dilemma of resource security where the question is not just a matter of prioritization but also of merit and practicality. While the possibility, intention and capability of pursuing or developing nuclear weapons for military and security purposes is limited in the foreseeable future, Southeast Asian national governments have been considering resorting to nuclear-based energy sources to address growing demands. The balancing of priorities for Southeast Asian states that is the decision-making pertaining to the implementation of binding obligations set by Resolution 1540 in the thick of financial, capability and technical constraints and in the perception that

allocating of scarce resources to security concerns of remote likelihood is senseless and inimical at the same time. However, Resolution 1540, through donors, offers opportunities for capability-building and security assistance that can assist Southeast Asian states to attain its most pressing and urgent development and human security priorities while observing international non-proliferation standards (Ibid, p.19).

<u>Security and Legal Implications</u>

Proliferation challenges in Southeast Asia has been further heightened by North Korea's aggressiveness in acquiring, developing and manufacturing WMDs as well as the involvement of a Malaysian company in the smuggling operations of nuclear technology (Rodriguez, n.d., pp. 47-50). There is also the increasing concern that the proliferation of sensitive dual-use commodities has been enmeshed in the convergence between piracy and terrorism. This is premised on the disproportionately growing terrorism and piracy problems in the region. The convergence can take the form of terrorists contracting out pirates to intercept or hijack vessels carrying licit and/or illicit CBRN WMDs (Acharya in Guan and Skogan, 2007, p. 84). Becker (2005) argues that the persistence of maritime insecurity even in Southeast Asian waters is argued to be a function of 1) the 'critical gap' between tenets prescribed by international law and the political will and capacity for enforceability, and; 2) prescriptions on the violations committed at sea such as interception of WMD lack specificity, scope or adaptability to evolving contexts. Likewise, Treves (2009) provides a focused elaboration as for how and why ameliorating maritime and trans-border crimes could be made more difficult by the weaknesses and limitations on international legal regimes governing enforceability, capture and arrest of maritime offenders. In the case WMD proliferation and trafficking, the absence of a legal framework that effectively coordinates third-party enforcement approaches to the consent and sovereignty concerns of the coastal state likely hampers the merits of universal jurisdiction and action of all states. Resolution 1540's prospects in this regard is in the establishment of municipal laws that will help secure CBRN WMDs at sea away from the hands of violators exploiting Southeast Asia's busy shipping lanes as well as assist enforcement efforts to prevent illicit trafficking at sea.

IV. Analysis: Explaining the Slow yet Promising Progress of Southeast Asian States in Complying with Resolution 1540 Using the IL-IR-Human Security Nexus of Constructivism

The initial responses of several Southeast Asian states towards Resolution 1540 and the obligations to establish strategic management and export controls were initially lukewarm and suspicious that the prospects for finding common ground in the dual-use conundrum were very thin and unsatisfactory relative to the assessment of critique and experts. The nature of dual-use dilemma tells that the amelioration of this type of human security threat requires collective efforts and insights, one that is impeded by the lack of individual enthusiasm and concerted suspicion that the resolution is intrusive and goes against the non-interference and informal/consultative nature that has been the norm for ASEAN states in conducting their political, economic and cooperative affairs (Ogilvie-White in Scheinman, 2008). The realists' parsimonious assumptions of anarchy will see these responses as a demonstration of Southeast Asian states adamant self-preservation. There is the belief that the provisions and

principles of Resolution 1540 can hamper legitimate trade and inimical to industrial growth and overall economy. The case in point is Singapore, its neutral stance towards Resolution 1540 despite increasing international pressure, was underpinned by its perception that establishing strategic trade and export controls is disadvantageous. Malaysia and the other Southeast Asian states also showed initial refusal for development, security and capability reasons. As a result, the manner in which the Southeast Asian states oversee the trade in sensitive dual-use is characterized in the literature as lax and toothless turning them into suppliers, transshipment/transit hubs and destination countries which consequently exposed them to greater vulnerability and regional risk factors (Jones, 2004).

Despite criticisms, the slow and inadequate accomplishments, the supportive stance of Southeast Asian states towards Resolution 1540, according to the Constructivist lens, actually holds a promise. It speaks of the tendencies of Southeast Asian states to become significant contributors to international peace and security as well as it underscores their orientation toward safeguarding and achieving human security by laying down national legislations ensuring that the values regarded to be important by its citizens are free from any forms of threats. An equally significant perspective is that compliance with Resolution 1540, given the political, economic and security situations that it aims to address, respond positively to the aspiration of the ASEAN Community that strives to be people-centered. Hernandez (2012) argues that it is "incumbent upon states to lay out rule-based mechanisms to contribute towards this aspiration." Resolution 1540's normative persuasion is to provide mechanisms for states to alter its relationship with its citizens by having national legislations that prevent non-state actors from acquiring, developing and dispensing WMDs and proliferation-sensitive dual-use technologies. I argue that the objectives of Resolution 1540 are compatible with the imperatives of human security in two fronts. First, there is the implicit yet very fundamental aim of coordinating efforts on national, regional and international levels to strengthen the global response against proliferation of WMD to non-state actors which engenders collective action among states. Second, this requirement for collective action or cooperation affirms the multifaceted and multidimensional nature of human security where the promotion of people-centered security cuts across different contextual and geographical factors, regardless whether the threat is just imagined or realized.

After a decade of international pressure, capability-building and outreach training provided by extra-regional and extra-governmental actors such as Japan, Australia, the US and the European Export Control Commission as well as years of observing how other countries benefitted from instituting domestic trade controls, three of Southeast Asian states have already established comprehensive strategic trade management and export control systems starting with Singapore (2004), Malaysia (2010) and the Philippines (2013). Other Southeast Asian states have also taken the steps in formulating similar domestic systems and initiatives such as Vietnam; Thailand has recently introduced a dual-use legislation and Indonesia. These changes in behavior attest to the claim that state preferences and identity is not fixed and can change through social interactions with other states (Wendt, 1995, p.73), a claim that is central to the assumptions of the IR paradigm of Constructivism which is also represented in the works of international legal scholars. Three convergence of assumptions between IL-IR and Human Security can be used in order to shed light as for why we should consider Resolution 1540 as a significant initiative and as for why

the emerging positive responses of Southeast Asian states matters especially seen from the perspective of securing the region from transnational threats as complex and difficult as dual-use proliferation. Engagements and interactions with other states shaped the region's approach to the issue of WMD terrorism and proliferation of sensitive dual-use technologies – creation of national governance structures that alter national security and trade policies (Early, Nance and Cottrell, 2017, p.98) and at the same time compliance with Resolution 1540 contributes to the diffusion of non-proliferation norms.

First, Southeast Asian states membership and exposure to various international and regional initiatives affirm their earlier progress in accepting their obligations and in observing their commitments to the global efforts of combatting WMD. Information as to how these states establish domestic strategic trade management and export control are indicators of their socialization and internalization of acceptable norms. Southeast Asian states, in the process of interacting with other states in the region and other extra-regional actors have been allowing the influences of international and regional initiatives over the issue of dual-use proliferation. The international system as an intersubjective domain accommodates this type of reality and produces a socially constructed form of cooperation based on collective perception and shared understanding that the proliferation of dual-use goods is in fact a threat to the values they consider as important. It is in this regard that human security, with its compatibility with the objectives and aims of Resolution 1540, is also underpinned by consensus and the collective interests of Southeast Asian states to safeguard their people and territory from threats posed by the spread of dual-use goods. The spread of international norms against proliferation and the reshaping and broadening of its definition to frame it as a human security concern and thus should be part of prioritized in the menu of national interests represents the "tipping point" in what Finnemore and Sikkink (1998) considers norm cascade. Southeast Asian states, learning and interacting with inter and extra-regional states compliant with Resolution 1540 will likely develop the habit and identity of honoring their commitments to non-proliferation norms by enshrining these in their national legislations.

Second, Constructivists argue that states can be socialized through norms that shape their identity and interests and consequently their behavior as expressed through their foreign policy and preferences for cooperation. It should be recognized that all Southeast Asian states are parties of several international, regional and multilateral initiatives to combat the proliferation of weapons of mass destruction – these states are members of the 1968 Non-Proliferation Treaty, 1996 Comprehensive Test Ban Treaty, 1997 Chemical Weapons Convention and the 1975 Biological Weapons Convention. They are also partners and participants to the PSI and IAEA from which they receive training and advice on almost all nuclear matters intended for peaceful use. All Southeast Asian states are also committed to the 1971 Zone of Peace, Freedom and Neutrality which was the first regional counter-proliferation initiative intended to create a weapon-free zone in Southeast Asia. The IR-IL nexus in this regard points to the logic of appropriateness found or regarded by states as compatible or consistent with their identity, interests and level of socialization. Furthermore, a state's action or behavior vis-à-vis other states is perceived to be consistent with norm- or rule following logic and the meaning they attached to a specific matter of engagement (Onuf, 2013, p. 4-5; March and Olsen, 1998, p.52). It is this logic that leads a state to view an international mandate to be legitimate and thus decide in favor

of it. The obligatory effect of Resolution 1540 is in its perceived legitimacy as an instrument for internalizing existing standards of values and morality and in directing positive outcomes towards responsible protection against the spread of dual-use goods.

Once perceived as inimical to the interests and is completely intrusive of sovereignty, Resolution 1540's merits have been slowly internalized by Southeast Asian states affirming the constructivists' assumptions that state interests, perceptions and identities are dynamic, are constituted by their interactions with other states and at the same time consistent with norm- or rule-following logic which meanings and legitimacy are attached on its attempt to solve a human security problem that does not necessarily require states to narrow down their understanding of self-interest. In this way, the anarchic state of affairs is constructed into something else and their cooperative behavior is guided by moral standards for which Resolution 1540 provides a heuristic process. The behavior of Southeast Asian states is contingent not only on their material interests but also on how they perceive themselves as responsible members of the international community. It affirms the notion that the norms of the international society influenced and guided the behavior of Southeast Asian states towards compliance. While there is the inherent difficulty in distinguishing between economic, security and normative motivations as well as in the empirical demonstration of how shared norms are internalized by states, we cannot set aside that interstate interaction produces learning effects that contribute to the collective/inter-subjective understanding of the levels of responsibilities and obligations commensurate to the dual-use dilemma.

Third, the Constructivists approach of co-constitution or structuration suggests that the actions of states contribute to the making of institutions and norms of international life (Hurd, 2008, p.303). These institutions and norms contribute to defining, socializing and influencing states. Both the international structure and individual states can be redefined in the process (Ibid, p.304). With this, the importance of ideational and discursive construction and naming in the identification of security and responses to threats cannot be set aside. Law provides a communicative and discursive framework to deliberate issues and to legitimize actions derived from mutual/collective recognition and respect for the validity of its ascendancy to solve a specific international dilemma. Jurgen Habermas' framing of decision-making in international politics as essentially both "communicative action" and "discourse ethics" underpins the logic of arguing where considerations for significant agency, intersubjective practices and discursive habits are purveyed by international legal frameworks and obligations that have come to be perceived as a resource for justice and equitability (Eckersley in Reus-Smit, 2004, p.106). This aligns with the proposition that state participation in solving and managing an international threat construct and preserve collective understanding for as long as legitimacy in compliance is accepted (Adler, 2005, p. 55). It is for this observation that compliance with Resolution 1540 gives states opportunities to reconstitute its future provisions in accordance to the evolving collective understanding of human security. Moreover, the regulative ideals of the resolution are essentially contractual since it requires the establishment of mutually binding norms and rules that are consensual in nature. However, compliance also provides Southeast Asian states the venue to exercise communicative justice in order for them to also shape rationality and the international conversation in regard to how human security is related to dual-use dilemma and how

Resolution 1540 can actually deliver intended outcomes. It is for this reason that we can consider compliance as constitutive such that its observance by states is fundamental to their continued recognition as members of the international society as well as it provides them enabling mechanisms to communicate, deliberate and construct their claims on what they think is appropriate or just given their intersubjective interests and identity. States acquire greater legitimacy in their decision-making when they obey rules therefore it follows that Southeast Asian states view compliance with Resolution 1540 as a fair and just means to ameliorate the proliferation of dual-use items.

VII. Conclusion

Southeast Asia's efforts in establishing their comprehensive domestic controls and improving the strategic trade management of sensitive items are all indications that these states are seeking to establish favorable and reputable images among international audience and are aiming to integrate themselves in the prevailing norms of human security and non-proliferation of dual-use goods. Given these, I argue that the emergent practices not only inter-subjectively affirms the legitimacy of Resolution 1540 but also serves as indication of the positive outcomes of its socialization with international norms affecting their interests, identity and role-assumption in the international order. It adds evidence to Southeast Asian states' conformity to the logic of appropriate action and their internalization of human security as an analytical category or approach that broadens and widens the scope of their understanding of self-interest, sovereignty and a people-centered approach in managing international conflicts and issues.

The problem of WMD proliferation is closely linked to environmental and human security. Vessel or ship accidents involving cargoes of proliferation-sensitive dual-use technologies could cause irreparable damage to the marine environment and ecosystem as well as to the lives of affected communities. It is argued that poverty and the lack of capability to access economic and political opportunities are the underlying rational for why individuals or states resort to terrorist activities that compromise various forms of interests and securities. The damages and negative impact of WMD proliferation exacerbate the cycle of poverty, perpetuate the structures of inequitable distribution of public goods and create more terrorist and malicious intents and actions coinciding with the increasing availability and accessibility of dual-use WMD materiel. A better and solid argument has to be developed in order to establish the linkages of WMD proliferation with international law, environmental and human security but it must be underscored that research has to move forward towards this direction.

Tigerstrom (2007, p. 199) argued that international law is at definite odds with human security especially given the dichotomy of state-centric vs. people-centric approach. Individual interests are often sacrificed for state interests since the key concepts and core principles of interstate affairs and international law often frame the state as the primary actor. If we take it from the international governance and network of cooperation standpoint, we see that this argument no longer holds enough strength to contend with the reality of fading geographical boundaries. In Southeast Asia, the possibility that sovereignty is invoked first before human security concerns might be true and in some instances serve as barrier to state practices and cooperative behavior

necessary to safeguard human security. The threat of WMD proliferation at sea is a traditional, environmental and human security concern. The adamant upholding of sovereignty stands in the way of promoting people-centered initiatives and in providing a human face to the traditional security dimension of WMD proliferation. Southeast Asian maritime security cooperation, in general, should incorporate the imperatives of human security.

This paper touched on incorporating human security in the discourse and dynamics of international law, IR in order to demonstrate the practical implications of state compliance with Resolution 1540 in the traditional security issue of dual-use proliferation and its maritime dimension; policy, practice and future researchers will benefit from further exploring and strengthening the linkages of these concepts.

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The Development of Salaya Through Agricultural Livelihood Transformations[1]

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Abstract

A number of recent studies similarly indicated dramatic change in the traditional rural society: subsistence farming was not the main way of life in Thailand rural anymore. Agricultural production is aimed to produce for sales at market rather than for subsistence. Salaya was one of those rural areas transformed over recent decades as the consequence of the expansion of urbanization, the decrease of agricultural land, the mobility of labour and migration. The research aimed to study economic transformation –changing in way of living in a case study of Salaya- in the peri-urban area close to Bangkok, Thailand. The research applied a case study approach through observation, participation and documentation. The study found out that there are changes in people livelihood in various types of income earning which led to a decrease in the number of farmers and agriculture areas, and the emerging of new styles of entrepreneurs who transform themselves from agricultural labour. As a result of the process, the alteration in living of the residents of Salaya was regarded as crucial in promoting basic understanding of further convoluted issues such as the shifts in people's attitude and social relationships.

Key words: peri-urban, transformation, local entrepreneurs

iafor

[1] This article was abridged from the research entitled "The Changes and the Process of Democracy Establishment in Rural Areas of the Central Region of Thailand".

Introduction

A number of recent studies similarly indicated dramatic change in the original rural society. Apichat Satitniramai et al. (2013) reviewed past literature in his study entitled "Re-examining the Political Landscape of Thailand" and drew a conclusion that the restructuring of society and economy in the last twenty years had a notable impact on people's living, particularly of those who were in rural society. Mass production became the main manufacture in the agricultural sector instead of minor domestic production and brought modern economic life to rural people.

Salaya was one of those rural areas transformed over recent decades as the consequence of the expansion of urbanization, the decrease of agricultural land, the mobility of labour and migration. As a result of the said processes, the alteration in living of the residents of Salaya was regarded crucial in promoting basic understanding of further convoluted issues such as the shifts in people's attitude and social relationships.

History of Salaya

Salaya—a sub-district previously regarded as a part of Nakhon Chai Si District, Nakhon Pathom—was currently known for the location of Mahidol University; however, this area used to be recognized as the outskirts distantly located from three cities, namely Nakhon Pathom, Nonthaburi and Bangkok. Khlong[2] Maha Sawat was built through this area as the main watercourse to Phra Pathom Chedi according to King Rama IV's intention and later became an important shipping route linking Chao Phraya River and Tha Chin River.

The king appointed special officials to draw maps of the eight-thousand-acre land near the canal and divided it into forty-seven plots given to his children under management by those special officials assigned to take care of benefit arising from the land.

The king's idea of building Khlong Maha Sawat and reclaiming the land nearby implied that Salaya before the royal development project was unsettled land, which was later possessed by people who moved from Tha Chin riverside villages for reasons of its location near the capital, and eventually grew into one of large cultivated fields in the region. Land ownership was later transferred after the royal family donated plots of land to local temples while villagers and the special officials appointed by the king gradually bought land from the former owners.

In 1878, King Rama V's gave orders to build Khlong Thawi Watthana (also called Khlong Kwang), linking Khlong Maha Sawat to Khlong Phasi Charoen, and also instructed to build Khlong Nara Phirom to connect Khlong Maha Sawat to Khlong Yong (Apilak Kasempholkul, 2010).

The arrival of railway stations—such as the construction project of railroad lines to the south, the launch of the railway line from Bangkok Noi station to Phetchaburi

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[2] A Thai word for a canal

station in 1897, Salaya station, Wat Suwan station and Khlong Maha Sawat station—created new settlements along the lines.

In 1955, Phutthamonthon Sai 4 Road was built branching off from Phetkasem Road—the main road from Bangkok to Nakhon Pathom, Ratchaburi and other southern provinces—which originally reached only Phutthamonthon area and was eventually expanded into Salaya area.

In 1983, Borommaratchachonnani Road (Pinklao – Nakhon Chai Sri Route) was opened making transportation to Bangkok become more convenient.

Markets and schools were brought about as a result of the overcrowded settlement. According to this reason, Wat Suwan Market located beside Khlong Maha Sawat was opened in the First Village to be a major local centre for trading, such as agricultural products, food and drink, and to be a meeting point of the community for it was situated near Wat Suwan station where the locals departed for Bangkok.

As time went by, this marketplace declined remaining only three or four wooden sheds and was replaced with Salaya Market which was the new bigger centre easily accessible for the locals. Moreover, three big department stores were launched nearby aggravating the situation of Wat Suwan Market.

Salaya in the Present Time

Salaya at present was a part of Phutthamonthon District and was divided into two administrative sectors which were Salaya Subdistrict Administrative Organization and Salaya Subdistrict Municipality. Salaya Subdistrict Administrative Organization's administration covered the First – the Third Village and some part of the Fourth – the Fifth Village while Salaya Subdistrict Municipality's administration covered the remainder of the Fourth – the Fifth Village and all of the Sixth Village. This noteworthy phenomenon implied that Salaya—the area which used to be only rice fields—has been developed into urban community described as follows:

Land use in the First Village was mostly for residency and agriculture based along side streets near Khlong Maha Sawat. The bulk of cultivated land was large rice fields and orchards up to 16 – 20 acres.

The Second Village was cultivated fields mingling with 4 – 5 housing estates of 100 – 200 houses. In addition, detached houses, 2 – 3 medium-sized industrial factories and small and medium-sized rice fields sparsely filled along local streets.

The Third Village, which was the location for Salaya Subdistrict Administrative Organization office, was mainly filled with small rice fields and detached houses. Medium-sized industrial factories, schools, terrace houses and dormitories were also built along streets connecting to main roads.

The Fourth – the Sixth Village administered by Salaya Subdistrict Municipality were rather urbanized villages and were the locations for governmental offices, including Mahidol University. The main road cutting through these villages were Borommaratchachonnani Road, Phutthamonthon Sai 4 Road and Highway 3004

surrounded by dormitories, convenient stores, gas stations, marketplaces, townhouses, hardware shops and many others.

In conclusion, nowadays various activities were preceded in Salaya, such as business, residence and farming, which was entirely different from the past when there were only rice fields covering the area.

Varieties of Occupations in Salaya

Occupations in Salaya

According to the territory of Salaya—which was fertile land with efficient irrigation for it was surrounded by canals, such as Khlong Maha Sawat, Khlong Yong and Khlong Thawi Watthana—and its location close to Om Noi – Om Yai industrial estates, the residents of Salaya were given various occupational choices from farming (for example, rice, lotus and fruit) to factory work. Moreover, the expansion of urbanization as results of highway construction projects and the arrival of governmental offices, particularly educational institutions (for instance, The College of Dramatic Arts, Rajamangala University of Technology, Kanjanapisek Wittayalai Nakhon Pathom School and Mahidol University), in these two past decades has increased job opportunities for the locals.

The expansion of industrial factories in Salaya brought about numerous street construction projects which helped the locals go to work or ship agricultural products to the town more conveniently. Farmers were able to cultivate various kinds of vegetation according to current sale prices, for example, rice fields were changed into lotus farms or water mimosa farms. Moreover, after factories, government offices and education institutions came into existence in the area, dormitory business and stores also came about to serve consumers of all purchasing power from minimum wage to high salary.

According to the survey, there were three kinds of livelihood of the inhabitants of Salaya as follows:

1. Farming

Farmers in the area were generally the middle-aged who lived by farming for generations. Most cultivated land was in the First and the Second Village which were under Salaya Subdistrict Administrative Organization's administration. Nearly all the agricultural land was rice fields while some were orchards (such as pomelo and mango orchards or orchid farms). In addition, a small number of lotus and water mimosa fields were also found in the area.

Cultivated land whether big ones of more than 8 acres or minor ones were mostly for rent and not many farmers had their own land. The owners of the land were probably temples, government departments, cooperatives or private individuals who were not the locals.

2. Retailing

Stores of big and medium size were mostly high street stores of 1 – 2 townhouses, such as hardware stores, drug stores, motorcycle shops, restaurants and barbershops, while small ones were set in sheds located along local streets and selling food or agricultural products from shop owners' farms. Furthermore, mobile shops and stalls were generally found in community areas.

Big and medium-sized shop owners along high streets were mostly newcomers while the owners of small ones located along local streets were largely the natives who used to earn a living by farming or still continued farming but ran the business in spare time. Moreover, from the survey, 40% of these small store owners also did another job simultaneously with a trading business.

3. Labour

There were both employees in industrial factories and daily paid workers, such as agricultural labourers, delivery workers or motorcycle taxi drivers.

It was also found that there were a number of workers who earned a living simultaneously by all these three types of activities in both the household and the individual level. There were husbands in some families run farming while wives run a shop while some farmers did business in their spare time from farming.

However, the survey did not cover skilled labour in private companies or government sectors who lived in townhouses which rapidly increased over a recent decade.

Orchards or Lotus Farms to Rice Fields Transformation

58-year-old farmer who used to run an orchard and a lotus farm recounted that, unlike an orchard or a lotus farm, a rice field needed less labour to work each job from transplanting rice seedlings to grinding rice kernels, and a farm owner's duties were only to employ and supervise those workers. Moreover, most farmers were getting older and none of their children wanted to continue farming which meant they lacked labour to run the old farming business and had to change the cultivated land into rice fields. During the interview, it could still be seen that the lotus farm of the interviewee was in the process of transformation into a rice field.

The flood crisis in 2011 was also one of the reasons behind the change. A number of farmers gave up pomelo orchards for it took a long time to re-nourish pomelo trees until the next harvest season. In the meanwhile, the government's rice mortgage scheme in 2012 - 2013, which suggested high rice sale price, was the important persuasive factor encouraging orchard farmers to turn their land into rice fields.

However, some young orchard farmers still determined to renew damaged pomelo orchards by separating a part of their farm to run a rice field in order to earn short-term income before pomelo harvest and to be prepared for the possible future flood. An interviewed farmer held the opinion that orchard farming was steadier than rice farming because its sale price rate was more stable and able to be negotiated, unlike

rice farming whose sale price rate was usually unstable and uncontrollable even though it took a shorter time until harvest.

Transformation from Farming to Wage Labour or Small Business

The origin of the change was that most agricultural land was rental land. When the landowners such as temples, government sectors and private individuals planned to sell their land for development—for example, housing estates, industrial factories, golf clubs or government offices—farmers who leased the land had to give up farming and became workers in a golf club or a factory. By the way of illustration, 50-year-old motorcycle taxi driver used to lease 10-acre land to grow rice for generations with the labour of his household and helpful neighbours, and later employed workers instead of domestic labour along with starting motorcycle taxi driving as a part-time job, and eventually only did driving job after the leased land was sold for housing development. The other case was a worker in a golf club who used to lease 12 – 16 acres of land to run rice fields but stopped farming after the land was sold and turned into a golf club while none of his children decided to continue farming.

The Cultivation of Rice along with another Part-Time Job

This case was largely found in the Second Village where farmers aged between 25 and 40 run small rice fields by employing workers and labour-saving equipment which gave them spare time to take a part-time job, such as daily wage worker and motorcycle taxi driving.
It was also noteworthy that these farmers had to do a part-time job since they run their farms on small land—whether of their own or rental one—which did not provide enough income.

This survey result was consistent with the study by Warunee Polprasert (2000) entitled "The Studies of Land Use Change of Salaya Community; Amphoe Phutthamonthon, Nakhon Pathom Province" which indicated that the proportion of cultivated areas were gradually reducing while urban areas were steadily expanding. Furthermore, from an informal interview with Chief Executive of Salaya Subdistrict Administrative Organization, it was also found that the number of agricultural areas in Salaya has dropped to 30% of Salaya area which stressed the steady decrease of farming areas.

Individual Entrepreneur in Salaya

Self employ entrepreneur

The origins of small stores selling food or agricultural products from shop owners' backyard gardens, such as bananas, beside local streets were various as follows:

1. Employees who were laid off after the Asian financial crisis in 1997 preferably decided to start a small business of their own rather than to apply for a new company due to their age considered too old to find a new job.
2. The convenient means of transport owing to the street construction projects attracted visitors to the area and consequently increased business opportunities.

3. A housewife whose husband did farming started a business to earn extra income.

These business owners mostly were the locals or ones who moved in with the locals after marriage. For instance, a wife with the age of 50 years who owned a restaurant recounted that she moved to Salaya after marrying a local rice farmer. At first, she worked in a factory around Om Noi and later started a restaurant with a small shop after being laid off due to the Asian financial crisis in 1997.

*Small-Medium Scale Enterprise*Owners of medium and large-scale business were mostly from the middle class, graduated in Sciences and Health Sciences and used to work for private companies until gaining enough experience to start their own business. For example, the case of a drug store owner who graduated in Pharmacy worked in a drug company for seven years and left the job to start his own store. The other case is an owner of an agricultural hardware shop who has worked as a salesman in an agricultural equipment company for ten years before starting his own shop.

Nevertheless, some business owners did not start a business with a high social cost like the above-mentioned examples since they did not graduate a degree and had no experience for never working for any company before. They initially used to run a small stall or work as a general labourer until saving enough money to lease a townhouse and open a permanent shop beside high streets.

Community Enterprise

The early community enterprises in Salaya were established in the area which seemed to be the most rural in Salaya. Nevertheless, community enterprises recently became more in the area which seemed to be the most urban ones. Some community enterprises were closed down; however, some were still able to run and satisfactorily grew. In this article, only one community enterprises name Salaya Preserved Fruit Products Community Enterprise, were discussed owing to their interesting features in growth, evolution and relations with other organizations in both formal and informal ways.

Origin

Jongdee Settha-Amnuay, Boonlert Settha-Amnuay[3]'s daughter, was the native of Salaya who was unable to continue the higher education in Nakhon Chai Sri District[4], in which Salaya was included at that time, due to her bad health condition.

By reason of a bad health state, Jongdee was not able to labour over her father's orchards business but still able to ship the products from the orchards such as watermelons, pomelos, mangoes, water minosa and morning glory) by train to Sala Namron Market near Thonburi Station for she had good skills of communication.

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[3] Boonlert was one of four orchards owners who joined the Khlong Maha Sawat Boating Tourism Project.
[4] Salaya was considered an isolated area because it was away from the centre of Nakhon Chai Sri District and Phutthamonthon District Authority has not been still established at that time.

Moreover, seeing there was no road in the neighborhood and the only means of transport in the area was by boat, Jongdee started a gas station business at her house available for motor boats and machines by selling to those who came to add fuel at the station and shipping to the neighbourhood. Jongdee added that the business was run successfully selling gas more than ten tanks a day partly because of her practical skills of communication, customer service in mind as well as intimate connections with neighbours.

Until the launch of Borommaratchachonnani Road in 1984, the extension of roads in Salaya in 1992 which encouraged road transport instead of travelling by boat and the incident of gas explosion in the vicinity, Jongdee eventually decided to close down the business.

After the permanent shutdown of the gas station business, Jongdee planned to set up a fruit preserves business starting with 7 - 8 members and was supported by a agriculture technical officer of Phutthamonthon District Agricultural Extension Office, who later became a Chief Assistant of Phutthamonthon District Agricultural Extension Office and invited Boonlert to join in the agricultural tourism project of which Jongdee also served as a treasurer.

She registered the fruit preserves business under the name of Salaya Preserved Fruit Products Community Enterprise with the increasing number of members which were presently thirty-three. All members were the villagers of the First Village from various ways of life from farmers to teachers and sellers, and had an active role in the selection of a new member. The latest four members of the enterprise were those who used to work in the other community enterprise which was closed down lately.

Activities of Salaya Preserved Fruit Products Community Enterprise

The products of this community enterprise recently became many and various; not only preserved fruit products but also artificial flowers from clay, cloth from lotus thread, rice crackers, steamed rice in lotus leaf wrap and Khao Tom Mad (coconut sticky rice in banana leaves). The income was distributed to members with additional privileges, such as t-shirts given on special occasions, birthday parties for members and economic aid given in the cases of sickness or decease. Moreover, the association also engaged in social activities, for example, the craft workshop programmes for the students from Wat Watsuwannaram School, charity events on National Children's Day and National Day of Older Persons, the big cleaning and planting campaigns on the canal side and the provision of food tents on the launch day of Faculty of Liberal Arts, Mahidol University.

Furthermore, the income of the enterprise not only came from trading but also from providing lunch boxes and snack boxes for events, attending contests held by government departments and serving as the demonstration centre for those who came to observe the activities of the association on Philosophy of Sufficiency Economy, Diversified Farming Theory, the local and healthy dishes workshops (such as rice crackers, steamed rice in lotus leaf wrap and 5-coloured bean juice).

Relations with Mahidol University

There were numerous professors who were interested in the origins and history of Phutthamonthon District, particular the history of the area along Khlong Maha Sawat. The examples of those professors conducting studies in the areas were Assistant Professor Iam Thongdee from Institute of Language and Culture for Rural Development (the previous name of Research Institute for Languages and Cultures of Asia), Associate Professor Waraporn Srisupan from Faculty of Social Sciences and Humanities and Assistant Professor Apilak Kasempholkul, Ph.D. from Faculty of Liberal Arts. The flow of academic staff formed a strong relationship between the education institute and the community, particularly Dr.Wattana Thiampathom who was a native of Salaya and served as the former deputy of Phutthamonthon hospital in 1994 until retirement in 2014.

Dr.Wattana Thiampathom was from a decent family for he was the grandson of Khun[5] Nikhom Salachapana—a village chief of Sala Thammasop Sub-District connected with Salaya—and was the son of Thaworn Thiampathom—an important Buddhist attendant of Wat[6] Watsuwannaram. He used to serve as the former deputy of Phutthamonthon hospital and was a respectable figure among the locals of Salaya as they informed, "You should discuss with Dr.Wattana. He is such a wise man with an all-round education!" Owing to the fact that his family estate of 80 acres was located not far away from Boonlert Settha-Amnuay's orchards which were the location for Salaya Preserved Fruit Products Community Enterprise, Dr.Wattana had a good personal relationship with Jongdee Settha-Amnuay which consequently led to the close relations between the community enterprise and Mahidol University as Assistant Professor Apilak Kasempholkul, Ph.D. described him as "a human bridge between Mahidol University and the community."

The more sectors of Mahidol University tended to visit the community enterprise for field trips after the business produced not only preserved fruit products but also local and healthful products, for example, Faculty of Nursing visited to observe healthful food production while ASEAN Institute for Health Development, students and foreign researchers visited to observe Thai local food production.

Informal Group in the Agricultural Sector

Unlike the above-mentioned registered businesses, there were also informal groups which were mostly of those labourers' in the agricultural sector in Salaya, Khlong Maha Sawat and Khlong Yong Sub-District. There were 2 - 3 groups in each area and were 7 - 15 members in each group aged between 20 and 50 from near villages who could work in the vicinity.

Workers in the agricultural sector were normally employed to work in rice fields. According to an interview with a lotus farmer, there were many detailed processes in lotus and orchard farming which depended largely on manual labour rather than machinery, such as lotus flowers and lotus leaves harvest and making bunches of lotus. Due to the elaborate manual processes, general labourers were unlikely to take these jobs while farm owners were also unlikely to hire these workers as it was not worth hiring to do these light tasks. Moreover, workers preferably tended to work in

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[5] A Thai title for a senior non-commissioned officer
[6] A Thai word for a temple

rice fields instead of lotus farms or orchards since they needed less manual labour and rather depended on labour-saving equipment.

The examples of jobs labourers were employed to do were to plough a field, sow rice seedlings, and inject herbicide and fertilizer.

All tasks were done by machine and tools of workers' while employers paid for seeds, fertilizer, herbicide, wages (50 Baht per field per person) with drinking water and energy drinking provided for the workers.

According to an interview with a farm owner, employers normally hired familiar workers, except the time when those familiar ones were unable to work for them because the group has planned to work for another employer. In this case, the workers' group would contact another group to take the job. It was not necessary that all members of a group had to work for the same job. If there was a job in a small farm, a group might send a small group of members to do the task in order that other members would be able to take another job they wanted.

The groups of these labourers seemed to be set up more than 15 years according to the time when rice farming method has been changed through years. In the recent years, many cultivated fields were shrunk down as results of selling land to industry and housing development projects by landowners or dividing family land to relatives. This situation led to the existence of agricultural labour because after some rice fields were shrunk down to 4 – 6 acres from which farmers were not able to earn sufficient income, they had to work in another farm to earn more money. Meanwhile, the need for agricultural labour was emphasized after the young generation gave up farming causing a lack of labour to the older generation who were incapable of labouring over farms.

The above-mentioned phenomena encouraged labour in the agricultural sector which eventually became the prime workforce replacing mutual labour exchange among the community. The system was helpful for farm owners who lacked labour, and in the meantime, created jobs for those with low education so they did not have to move to urban cities working as workers in the industrial sector.

Conclusion

Instead the fact that cultivated land was continuously shrunk down to 30% of the whole area, agriculture was still a major livelihood in Salaya. However, farmers who continued farming for generations had to adjust to the new means of cultivation which was different from the past method.

The transformation in Salaya was a notable example proving that the extension of road construction was highly relevant to urbanization. The road development of both main and local streets brought about a number of shops, industrial factories and housing estates to the area.

The expansion of road construction did not only brought the change in physical conditions but also led to convenient transport for the locals to work outside Salaya,

such as in industrial factories, golf clubs and schools. In addition, this convenience of transport also promoted tourism businesses and community enterprises.

The development in Salaya has transformed the area into the semi-rural community which steadily became more urban. There were not only farmers in the area any longer, but in fact, these farmers who lived in Salaya for generations have increasingly become entrepreneurs of various businesses simultaneously with farming by gaining long experience and making formal and informal connections with the locals and people from other communities. These relations sometimes caused conflicts rather than support; however, most of them were beneficial to those enterprises.

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A Case Study of Entrepreneur's Behavior and Enterprise Transformation Mode Selection

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Abstract
As one of the main bodies of the market, SMEs play the most active part in the market, fueling the industrial structure transformation. Currently, the relevant researches on this topic mainly focus on the motives of the transformation, integration of resources allocation, path evolution, mode selection and consequences of the transformation. Few studies, however, have been targeted at the correlation between entrepreneurs' behaviors and Hi-Tech SMEs transformation mode selection. This paper conducts a case study of Qi Wei Te solar energy corporation on this issue. The research reveals that the entrepreneur's risk preferences fluctuate in the life circle of the enterprises, and accordingly affect organization's behaviors and transformation selection of the enterprises. This paper presents the patterns of incremental and drastic transformation modes based on the entrepreneur's behaviors. The results of this paper contribute and enrich the theoretical framework of the relationship between entrepreneur's behavior   and business transformation, and present referral value for the transformation of Hi-Tech SMEs.

Keywords: Hi-Tech SME, Enterprise Transformation, Entrepreneurs' behavior, Incremental Transformation, Drastic Transformation

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Introduction

As the most active part in the market, Hi-Tech SMEs have become a new economic growth point, fueling the industrial structure transformation in China. According to The Minor Enterprise Information Network the number of science and technology small giant enterprise doubled in number than in 2014 in Hebei Province and nearly 80% well-known trademarks are created by them. It is not a unique instance, but has its counterpart, Hi-Tech SMEs support the half of Tianjin industry. Under such background, the transformation of SMEs has become the focus of scholars, especially in the strategic management and change management fields (Yang, 2010; Kong, 2012).

Currently, the relevant researches on this topic mainly focus on the motives of the transformation (Zhang, 2014; Jiang, Gong, & Wei, 2011), integration of resources allocation (Kong, 2012), path evolution (Jiang, Gong, Xu, & et al.,2015), mode selection (Chen & Zhang, 2016) and consequences of the transformation. The research on transformation model classification is mainly focus on the object of study (such as: business, process, industry, ect.). Some enterprises in the process of the transformation completely adopt new technologies and business, while others hold the basis of the original technology and business. Andrew and Marshall (1995) consider the former is incremental transformation, the latter is drastic transformation.

Entrepreneur is the key factor of enterprise transformation in SMEs. They not only affect the survival of enterprises will also influence the future development of enterprises. Entrepreneurs decide the enterprise transformation model and they often have different behavior patterns in different stages of enterprise development (Wu, Ouyang, & Yao, 2015). It is not only the need of management practice, but also the issue of theoretical development to figure out the internal mechanism of entrepreneurial behavior and the choice of enterprise transformation model. Few studies, however, have been targeted at the correlation between entrepreneurs' behaviors and Hi-Tech SMEs transformation mode selection. This paper conducts a case study of Qi Wei Te solar energy corporation on this issue.

Literature Review and Theoretical Framework

Entrepreneur's Behavior

For nearly two centuries, scholars have been focusing on the entrepreneur's ability to control and organize production processes in the context of risk and uncertainty (Xie, Wu, Xiao, & et al, 2016). Kvietok (2014) believes that entrepreneurs are willing to take reasonable risks in order to succeed. Entrepreneurs believe that fate is in their own hands, they are independent. Honjo (2015) believes that people with knowledge, skills, and experience in the field of business management are more likely to become entrepreneurs in their future careers. Ucbasaran (2003) believes that risk lover is more likely to become entrepreneurs than risk averter. Risk preference not only determines the unique information processing mode, but also is considered as an important cognitive power in the dynamic competitive environment. Risk preference determines the entrepreneur's decision-making path and behavior model. Risk preferences represent opportunities awareness and strong desire for excess profits and directly induce innovation behavior. And scholars think that the individual's risk preference

leads to the anchoring effect on interpersonal interaction expectation and the degree of intimacy in interpersonal relationship, and then exaggerate the social network of their own (Baldwin, 1992).

In the middle of the twentieth Century, the study on entrepreneur's behavior in the neoclassical theory was based on the maximization of the utility of individual expectations. Neoclassical scholars said that the unique behavior of entrepreneurs relative to workers, consumers and managers is to take risks. Kihlstrom and Laffont (1979) based on the risk aversion to establish a model of the risk-taking coefficient of entrepreneurs, more risk averse individuals become workers while the less risk averse become entrepreneur. With the development of research, there was Austrian theory (Kirzner & Israel, 2009) which suggests that market disequilibrium provides entrepreneurial opportunities. Austrian theory focuses on the use of opportunities, but to a certain extent, it ignores the exploitation of opportunities. McClelland (1987) believes that the ability of entrepreneurs to use and exploit opportunities is one of the success of the enterprise. Misra and Kumar (2000) proposed personal psychological traits do not guarantee that they become an entrepreneur, but its behavior and action can, it also puts forward looking for opportunities and opportunities awareness to act as important dimensions of entrepreneur's behavior (Hood & Young, 1993). Risk preference determines the degree of development and utilization of opportunities (Zhang & Zhang, 2016).

With the development of entrepreneur's behavior theory, Joseph Schumpeter put forward the "creative destruction" function of entrepreneur's behavior (Innovative behavior), to a certain extent, the theory of entrepreneur's behavior is supplemented (Schumpeter, 1934). The present research mainly divides the innovation behavior into the incremental innovation and the radical innovation, and the research on the entrepreneur's innovation behavior provides the fundamental driving force for the realization of the innovation driven strategy under the background of "new normal". Liu and Wu (2012) constructed a model of entrepreneur's behavior in modern China, and put forward that the innovation behavior and the opportunities awareness are the important characteristics of the entrepreneur's behavior. But entrepreneur's behavior is the result of a series of internal and external factors, only rely on the internal resources of enterprises cannot meet the development of enterprises, more and more enterprises are being embedded in more extensive and overlapping network (Gulati, 1999), the entrepreneur's behavior is embedded in the social network too. Based on the existing literature, this paper argues that entrepreneur's behavior mainly includes the opportunities awareness behavior, innovation behavior and network building behavior under the control of entrepreneur's risk preference.

Enterprise Transformation

In the actual operation of the enterprise, most of the enterprise transformation ended in failure (Agarwal & Helfat, 2009). McKinsey's 2014 survey shows that only about 26% of companies believe that the transformation of enterprises will help to improve the performance and promote the sustainable growth of enterprises.

The factors that affect the transformation of enterprises can be divided into internal factors and external factors. The scholars who study the external factors think that the external environment of the enterprise is an important factor that affects the

transformation of enterprises. For example, Zhang (2014) believes that the transformation of enterprises is the process of adapting to the competitive external environment, Virany et al. (1992) suggest that in order to adapt to the external environment, it is more helpful to adopt drastic transformation than steadiness for the survival and growth of the enterprise. Most of the research on the factors affecting the transformation of enterprise focus on internal enterprise. Most scholars believe that innovation is the key to the transformation of enterprises, the transformation of enterprise innovation under environmental regulation is a process from quantitative change to qualitative change (Zeng, Feng, & Zhang, 2016). The institutional environment has an important influence on the business transformation of OEM Enterprises, the ability of enterprise based on "adaptive learning" determines the transformation of OEM Enterprises (Mao, Jiang, & Mo, 2009). Jing and McDermott conclude that the leaders' level of aspiration and political skills of the state-owned enterprises play an important role in the transformation of enterprises through inductive case studies (Jing, & McDermott, 2013). Deng and Rui (2013) put forward the cognition of the enterprise managers and the construction of the ambidextrous competence is beneficial to the enterprise strategic transformation.

There is no fixed pattern in the transformation of the enterprise, the enterprise should choose the suitable transformation model according to its own resources, ability and the judgment to the environment. Through the analysis of literatures, it is found that the model of enterprise transformation focuses on the study of unilateral content (such as business process, business content, enterprise structure, enterprise strategy, etc.). The transformation of the business transformation of the processing enterprises from OEM to ODM (Original Design Manufacturing, the original design and production) and then to OBM (Original Brand Manufacturing, the original brand production). By moving around the Smile Curve in order to promotes the additional value of products on the value chain, or by turning to emerging industries to achieve the transformation of the value chain to enhance the value of the product for business transformation (Zhao, Wang, 2012). Mixed and embedded service transformation under different economic cycles (Chen, & Zhang, 2016). Zhang (2014) studied the transformation of SMEs in the industrial cluster under the super competitive environment and proposed the collaborative model of enterprise transformation. Xu (2010) is proposed the six elements of the strategic transformation of Chinese Enterprises. According to the direction and degree of strategic transformation, the strategic transformation of enterprises can be divided into drastic strategic transformation, incremental strategic transformation, erosive strategic transformation and Structural Strategic Transformation (Xue, Zhou, & Chu, 2012). Reger et al. (1992) through empirical data to verify the general environment in the enterprise will take the incremental transformation of the way, in a volatile environment will generally take drastic transformation. Marquish (1982) divides technological innovation into incremental innovation, system innovation and drastic innovation according to different degrees of innovation. After that, the scholars divided innovation into two types of incremental innovation and drastic innovation. Similarly, the research on enterprise transformation can be divided into incremental transformation and drastic transformation (Pellettiere, 2006). Drastic transformation refers to some enterprises take technical and business or new business models in the process of transformation, and the incremental transformation refers to some enterprises based on the original technology, business or business model to conduct the new technology and business transformation (Andrew et al., 1995).

Research Framework

The entrepreneur's risk preference has a direct impact on his behavior, and it changes with the increase of experience and learning ability. In such a situation, the behavior model of entrepreneurs will also be changed (Zhang, Zhang, & Fan, 2016), finally led to changes in corporate transformation model. Opportunities awareness is an important driving force for the success of enterprise transformation. And it enables enterprises to accurately capture new market demand in a rapidly changing environment. Specifically, Entrepreneurs who are good at digging opportunities can quickly capture the development of new technologies and new business model for the development of enterprises and can provide the basis for enterprises to create new competitive advantages (Teece, 2012). Entrepreneurs who are good at using existing opportunities can better integrate and configure resources (Guo, & Cai, 2014). Entrepreneurs through the coordination of these two acts provide power for the successful transformation of enterprises. To a certain extent, through the dig of opportunity enterprises can make the radical innovation, get first mover advantage. On the basis of the radical innovation, we can improve the new product according to the market demand. It is essential for entrepreneurs to put the necessary resources into the implementation of opportunities awareness behavior and innovation behavior (Luo, Ren, Jiao, & et al., 2014). The network composed of business relations and political relations is an important channel for obtaining and utilizing resources (Luo & Tung, 2007), and provides a good environment for the transformation of enterprises.

Based on above all, we construct a framework for the transformation of entrepreneur's behavior and enterprise transformation based on entrepreneur's risk preference (see figure 1). This paper argues that the entrepreneur's risk preference affects the perception of market opportunity, and then constructs the key resources needed for innovation through the network.
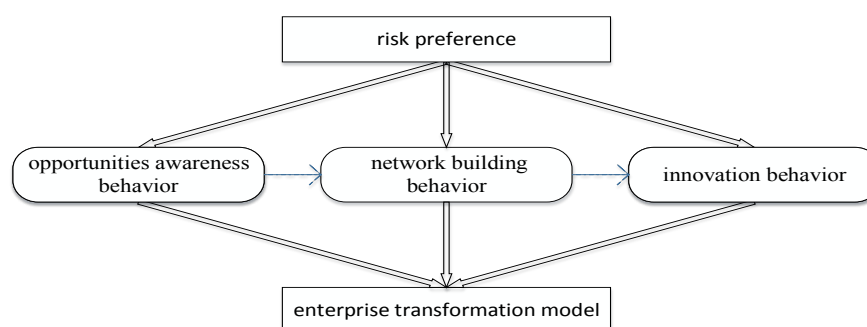
Figure 1: Research framework of entrepreneur's behavior and enterprise transformation model

Case Situation and Research Methods

Selection of Target Cases

Qi Wei Te solar energy corporation was founded in 2005.It is the rapid growth of Hi-Tech SMEs. In 2008, it was the first time that Qi Wei Te given up the air conditioner market shift to the solar air conditioner market. In 2014, the second transformation, in the preservation of solar air-conditioning business, mainly develops

gas heat pump. In the early period of transformation, due to the inertia of thinking and lack of experience, suffered setbacks.
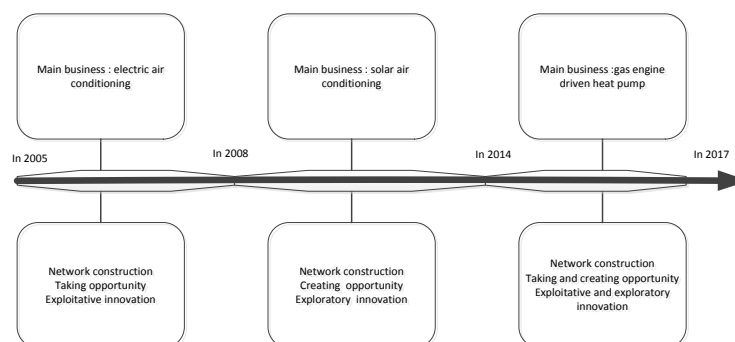
Figure 2: The relationship between main business and entrepreneur' s behavior

Method

In this paper, the research is carried out follow the norms and procedures of case studies (Xu Zheng, 2010). Based on the following reasons, this paper adopts the method of longitudinal case study: (1) the relationship between the transformation of Hi-Tech SMEs and entrepreneur' s behavior is an area that has not yet been paid attention to, and case study is applicable to the early stage of a field study (Eisenhardt, 1989).(2) the purpose of this paper is to explore how the entrepreneur' s behavior influences the transformation of enterprises, and the answer to the question belongs to the category of "how", so it is suitable to adopt the method of case study.

Data collection

In this study, the reliability and validity of the research were analyzed from four aspects: construct validity, external validity, internal validity and reliability, as shown in Table 1, (Yin, 2008).

Table 1: strategy to ensure the reliability and validity

checkout	strategy	Using phase	Concrete methods
Construct validity	triangulation	data collection	Open interviews, Informal interview, Internal information, Enterprise website, Media interview
	evidence chain	data collection	Raw materials - key sentence selection - condensed related categories - the combination of theory and data - a theoretical model
	report verification	data analysis	The coding materials to the enterprise audit, ensure the accuracy of understanding

External validity	theoretical direction	research design	The analysis of literature makes the research and literature in-depth dialogue
Internal validity	model interpretation	data analysis	Explain the model
	model modification	data analysis	The existing models are analyzed by the Scholars, and the opposite data are presented to correct them
Reliability	Outline of case study	research design	Designed by a number of researchers before the case study
	Create folder	data collection	Collect and sort out all kinds of information
	Repeated implementation	Data analysis	Iterative analysis until the theoretical saturation
	Multiple data types	data collection	Multi-channel data collection

Data analysis

In this study, the data were analyzed by the method of in-depth content analysis, which did not set up the initial theoretical preference and the initial theoretical hypothesis before the analysis of the case data (Eisenhardt, 1989). The data analysis process of this study is as follows: first, set up the data analysis team (3 people). In order to ensure the reliability of the data analysis, the data were sorted into different documents according to different data sources, conduct a preliminary classification by analyzing the statements of different groups of materials from different sources. Extracting statements related to entrepreneurial behavior and enterprise transformation, to be used as label. The second step is to start open coding. Analysis of extracted statements by different members, and then the statement is conceptualized and classified. Finally, the conclusions of each member are compared, and the disputed areas are analyzed, and the related statements are analyzed and discussed, and find the internal relationship between the various categories, can get the following story line (see figure 3). On the basis of categorization, the author further analyzes the main category and the core category, and then constructs the corresponding model.
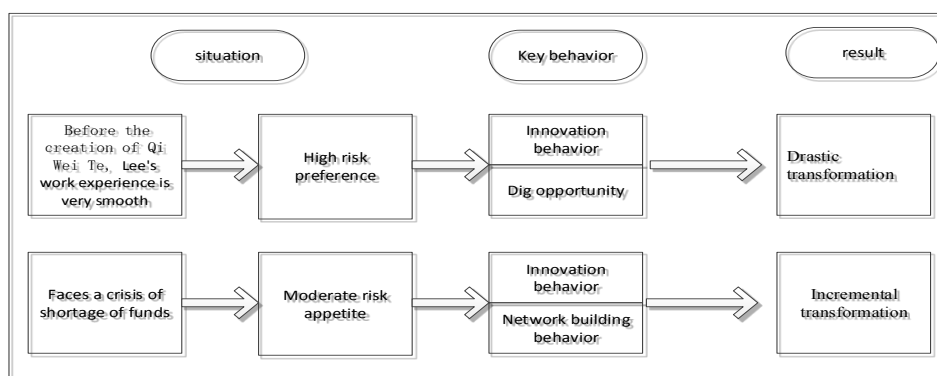
Figure 3: The relationship of entrepreneur's behavior and transformation model

Case finding and model building

In Hi-Tech SMEs, the entrepreneurs who master the core technology determines the fate of the enterprise. In this study, we analyzed the behavior of entrepreneurs in the process of transformation and found that the second successful transformation is based on the achievements of the first transformation. Pay attention to the market demand, continuous improvement, to achieve the second incremental transformation. Generally speaking, in the process of enterprise development, these are the integration and iteration of entrepreneur's behaviors. The behavior integration, not only focus on a single behavior, but in a specific situation, to take the appropriate action combination, see figure 4. The iterative behavior is not a simple cycle of replication, but the combination of behavior according to certain steps, based on the previous research, the potential technology to maintain a keen intuition, according to market demand, to achieve the iterative upgrade effect, through the cycle of rise, achieve the incremental transformation.

Integration of entrepreneur's behavior and enterprise transformation

Hi-Tech SMEs with high competitive environment, the high competitive environment leads to external unpredictable changes, enterprises often can only passively adapt. The choice or combination of the transformation mode can change the situation of the organization, make the enterprise better adapt to the external environment. The integration of entrepreneur's behaviors affects the choice of the mode of enterprise transformation, and the choice of the mode of enterprise transformation is one of the key factors of successful transformation. Through case analysis (see table 2), it is found that in the process of transformation, the entrepreneur's behaviors pattern is the effective integration of the entrepreneur's behaviors, the external environment, the relational network, the technology and so on. In the process of enterprise transformation, the integration of entrepreneurial behavior in the process of enterprise transformation mainly involves the behavior pattern under different risk preferences.

Table 2: The key concepts and examples of the integration of entrepreneur's behavior

Situation	Core category	Evidence case
High risk preference	Innovation behavior	"We cannot find Lee in the general office, Lee always put the time in the laboratory to study new technologies." (a1）
	Weakening networking construction	"Not good at dealing with government departments, for some of the poor cultural level of entrepreneurs is also a persistent attitude, rarely authorized" （a8）
	Taking opportunity	"In the case of shortage of funds, not aggressive, everything should by nature" （a13）
Moderate risk preference	Innovation behavior	"In the existing ammonia refrigeration technology to improve the development of a gas heat pump" （a16）
	strengthening networking construction	"Preliminary decentralization in the enterprise, the interpersonal activities handled by the investment director" （a14）

	Creating opportunity	"Under the premise of not applying ammonia refrigeration technology in China, this technology has been introduced abroad, so the technology has not been developed in China" （a6）

Risk preference	High risk preference				Moderate risk preference			
Opportunities awareness behavior	dig	dig	utilization	utilization	dig	dig	utilization	utilization
Innovation behavior	explore	utilization	explore	utilization	explore	utilization	explore	utilization
Network building behavior	Always be here							
Incremental Transformation Drastic transformation								

Figure 4: The model of entrepreneur's behavior integration

Iteration of entrepreneur's behavior and enterprise transformation

With the development of the times, the enterprise can obtain the desired user information at low cost with the help of the Internet. It provides favorable conditions for the iteration of entrepreneur's behavior in the process of enterprise transformation, and the iterative activities can help enterprises reduce the risk in the process of transformation (Luo, et al., 2014). Through the case analysis found that in the process of enterprise transformation, entrepreneur's behavior is structured with these tight feedback loops of making mistakes and learning and new combination (see figure 4).
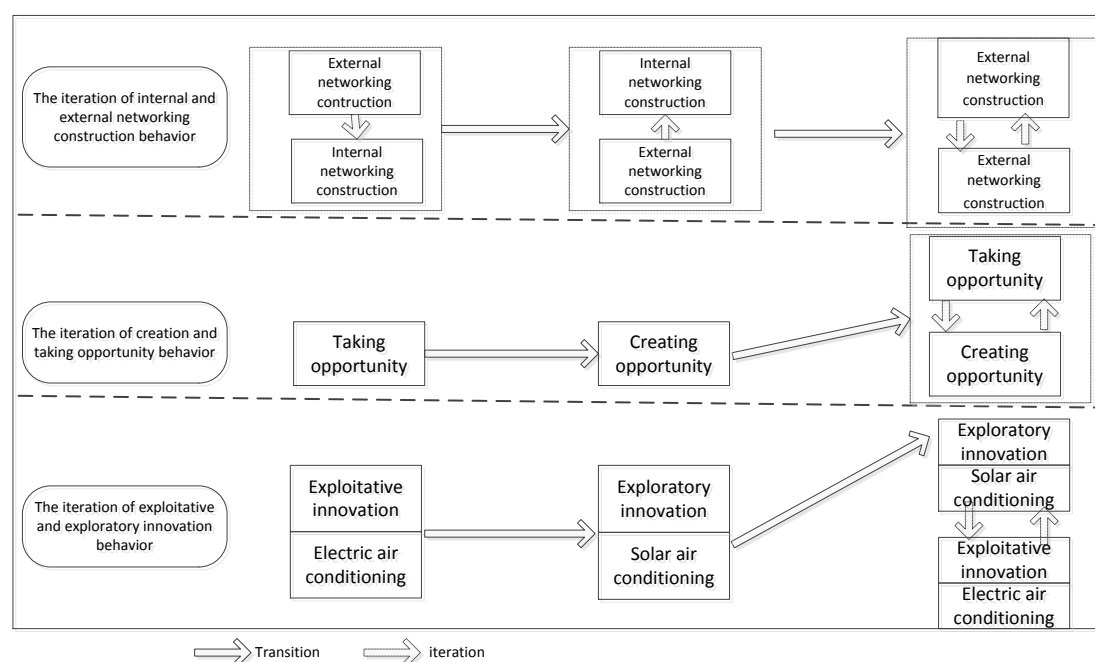
Figure 5: The integration and iteration of entrepreneur's behavior
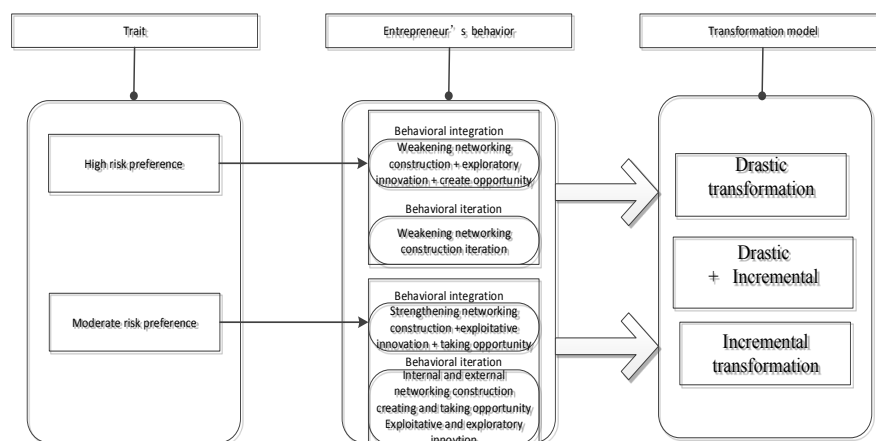
Figure 6: The relationship between entrepreneur's behavior and the transformation of Hi-Tech SMEs

Conclusions and discussion

This paper analyzes the correlation between entrepreneurs' behaviors and Hi-Tech SMEs transformation mode selection based on a longitudinal case study and found that (see figure 5) the integration and iteration of entrepreneur's behavior is beneficial to the successful transformation of enterprises.

Study on behavior theory mainly from the perspective of psychology, entrepreneur's experience has an impact on entrepreneur's risk preference, entrepreneurs with high risk preference tend to explore behavior, moderate entrepreneurs tend to use behavior. Entrepreneur preferences may change in the process of enterprise development, entrepreneurs through continuous exploration, sorting and iterative their behavior in order to adapt to the internal and external situation of the enterprise. This study shows that in the process of the enterprises' transformation, the integration and iteration of behavior is to adjust the behavior combination in different situations. In this paper, we further enrich the strategic discussion of "iterative micro innovation" (Luo, et al., 2014) and "iterative update Convention" (Xie, et al., 2016). Through case studies, this paper points out that through the integration and iteration of behavior, it is more conducive to the choice of enterprises in the process of transformation.

Through the research on the entrepreneur's behavior in the process of enterprise transformation, we can provide the reference for other Hi-Tech SMEs. Learn from failure, learn from experience. For the micro foundation of the external environment of enterprise transformation as the economic restructuring, enterprise success to the economic transformation of the relationship between the success of the transition, the government should formulate favorable policies to guide all entrepreneurs take entrepreneurial behavior to promote business success in transition.

Limitations of the article: this paper summarizes the conclusions based on a single case, whether other industries and areas of enterprise application needs further analysis, research in the future, can be increased in line with the appropriate case, multi case studies, and by means of replication and differential replication to analyze, in order to make the conclusion more persuasive.

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New Consensus on Archipelagic Sea Lane Passage Regime over Marine Protected Areas: Study Case on Indonesian Waters

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Abstract

Indonesia's Archipelagic Sea Lanes (ASLs) is the routes of navigation that used to pass through the archipelagic waters and territorial sea of Indonesia. Every state has the right of ASL's passage. As it is set out in the United Nations Law of the Sea Convention 1982, every foreign ship passes the ASLs is using the normal mode and unobstructed navigation. As the protection to the marine environment is growing, the practice of normal modes and unobstructed navigation will no longer the same. The fact that Indonesia's ASLs is overlapping with the areas protected under the world Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), Indonesia and international community have a common responsibility to protect and conserve such areas while maintaining the right of ASLs at the same time. This study concludes that concept of normal mode and the unobtructive passage is irrelevant for today because the impact of the establishment of the CTI-CFF should follow by special treatment for international navigation when crossing the Indonesia ASL's area. This special treatment is imperative because of ship speed, machine, ship propulsion, sea flow, junk ship will damage ecosystem of coral reefs and potentially to disrupt sensor of highly migratory fish like whale and dolphin. Therefore, it is argued that new consensus and code of conduct for right of Indonesia ASLs passage is required to facilitate both of international interests.

Keyword: New Consensus, Indonesia's Archipelagic Sea Lane, Marine Protected Areas.

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Introduction

The long history of the establishment of United Nation Law of the Sea 1982 (LOSC) has established various forms of state seeing from a geographical point of view (Lestari, 2012).[1] One form of state recognized after the establishment of the LOCS is an archipelagic state. It is said that an archipelagic state means a State constituted wholly by one or more archipelagos and may include other islands (art. 46, LOSC 1982). The sovereignty of the archipelagic state covers the entire sea regions of 12 miles from the baseline. However, recognition of the sovereignty of the marine territory by the LOSC does not necessarily eliminate the navigation rights of other countries that had existed long before the LOSC 1982 was established. In article 53 of LOSC, states that all ships and aircraft enjoy the right of Archipelagic Sea Line Passage (right of ASLP) in the waters of the archipelagic state, and on the other hand, the archipelagic state has the right to designate or not designate the existing sea lanes and air route. The privilege of the right of this archipelagic sea lanes passage is continous and rapid as the foreign ships and aircraft pass and/or through the archipelagic sea lanes in the territorial waters of the archipelago and the territorial sea of the archipelagic state without impairing its sovereignty.

Currently, there are 22 states in the world who claim to be an archipelagic state (UN Table of claims to maritime jurisdiction, 2011),[2] However, only Indonesia has designated Archipelagic Sea Lines/ASL. Archipelagic sea lanes passage (LOSC art. 53 (3)) means: the exercise in accordance with this Convention of the rights of navigation and over flight in the normal mode solely for the purpose of continuous, expeditious and unobstructed transit between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.

There are 3 Indonesian archipelagic sea lanes connecting the sea/ocean in the north with the sea/ocean in the south of Indonesia, in accordance with Government Regulation of 2002, which includes:

1.   Archipelagic Sea Lanes I, connecting the South China Sea – Natuna Sea – Karimata Strait – Sunda Strait – Hindia Ocean and vice versa. ASL's I A connecting Singapore strait passing Natuna Sea or vice versa.

2.   Archipelagic Sea Lanes II, connecting Celebes Sea – Makassar Strait – Flores Sea – Lombok Strait – Hindia Ocean and vice versa.

3.   Archipelagic Sea Lanes III A, consisting of four branches:

   a.) ASL's III B is connecting Pacific Ocean and Hindia Ocean, through Moluccas Sea, Seram Sea, Banda Sea and Leti Strait and vice versa.
   b.) ASL's III C is connecting Pacific Ocean and Arafura Sea, through Moluccas Sea, Seram Sea and Banda Sea and vice versa.

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[1] There are 4 types of state according to LOSC 1982, coastal states, closed states, archipelagic states, and geographically disadventages states, *see also* Maria Maya Lestari, *Negara Kepulauan Dalam Konteks Zonasi Hukum Laut*, *Jurnal Ilmu Hukum Yustitia*, Vol. 19 Number 2 (July-December) 2012, p. 188 (no internet access).
[2] United Nation, Table of claims to maritime jurisdiction (as at 15 July 2011), available at http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/tablesummary ofclaims.pdf

c.) ASL's III D is connecting Pasific Ocean and Hindia Ocean, through Moluccas Sea, Seram Sea, Banda Sea, Ombai Strait, Savu Sea and vice versa.

d.) ASL's III E is connecting Hindia Ocean to Celebes Sea or vice versa, through Savu Sea, Ombai Strait, Banda Sea, Seram Sea and Moluccas or; Navigation from Timor Sea to Celebes Sea through Leti Strait, Banda Sea, Seram Sea, and Moluccas Sea, or; Navigation from Arafuru Sea to Celebes Sea or vice versa, through Banda Sea, Seram Sea, Moluccas Sea.
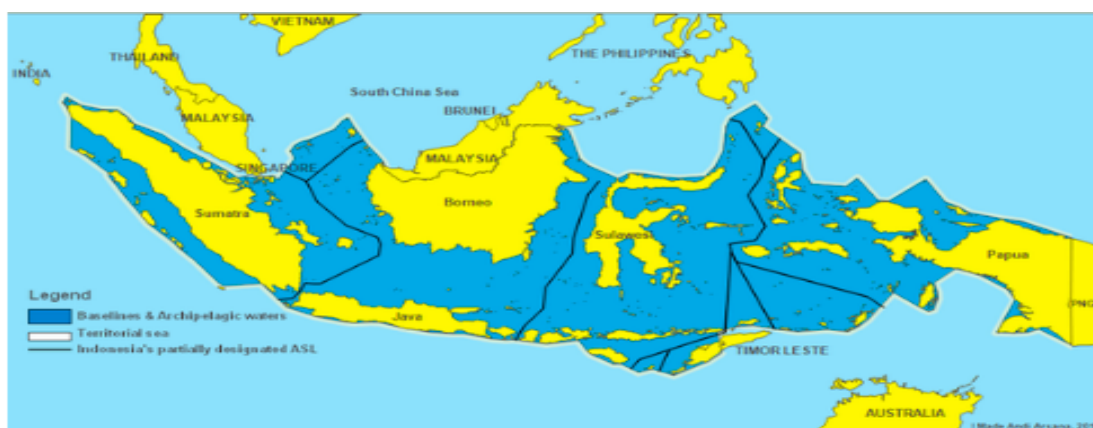
Figure 1: Indonesia's ASL; Made by Andi Arsana, accessed at https://madeandi.com/2015/12/09/alurlaut-kepulauan-indonesia-alias-alki-barang-apa-lagi-ini/

Historically, as with LOSC 1982, the designation of Indonesia's archipelagic sea lanes (Indonesia ASL) is also the result of concensus (Barry Buzan, 1981). This consensus is between Indonesia with the user states (America and Australia) and IMO/International Maritime Organization as the official maritime organization. This consensus concerning the Indonesia's archipelagic sea lanes resulted in the agreement on the designation of 3 ASL's in Indonesia (as described earlier) on May 19, 1998. In addition, this agreement also produced 19 Rules of Archipelagic Sealine Passage (Leonard C. Bastian et.all, 2014; and Dhiana Puspitawati, 2005). These rules regulate the safety procedures of shipping, rights and obligations, normal mode, unobstructed, navigable route that allowed, military navigation, aircraft passing and marine protected, etc (19 Rule's Indonesia ASL's, 1988). As for the safety of shipping and environment is the obligation of both parties (archipelagic state and shipping user state) to take precaution and prevent all marine populations caused by the various ship and shipping activities.

Recently, the consideration is the rapid development and research on the marine environment, even the results of research have shown that Indonesia is one area of Coral Triangle World. This means that Indonesia's marrine territories are regions rich in biodiversity and complex ecosystem (Alan T. White,et.all. 2014 :). As the center of world marine biodiversity, Indonesian sea will support the world's food reserves coming from the sea (Brian W. Bowen, at.al, 2013). In 2009 in Manado, six countries which are Indonesia, Malaysia, Philippines, Timor Leste, Papua New Guinea and Solomon Island have announced and initiated the establishment of Coral Triangle Initiative Food and Fisheries/CTI-FF). Manado Declaration is the result of a monumental collaboration in the field of marine protection, and in accordance with

the Montreal Protocol (1987), Rio de Janeiro Declaration (1992), Kyoto Protocol (1997-1999), Johannesburg Declaration (2002) and Bali Roadmap (2007), because it is focused on regional marine protected areas (Ministry of State Secretariat RI, 2009).

Almost half of the Indonesian marrine territory has been designated as CTI-FF, especially the eastern seas of Indonesia. To support CTI-FF programe, the Minister of Marine Affairs and Fisheries of Indonesia (2009) has designated Marine Protected Areas (MPA) consisting of three criteria, these criteria are ecology, socio-culture, and economic. By these criteria, it will be determined 4 types of Marine Protected Areas, they are:

1. National Park,
2. Marine Nature Reserve,
3. Nature recreation Park
4. Fisheries Asylums

Each marine conservation area will have distinctive features, uniqueness, and differences, such as coral reefs, seagrass beds, or marine mammal glow areas such as whales, sharks and turtles (WWF-Indonesia, 2014). The Indonesian government has planned 20 million MPAs by 2020. Broadly speaking, there are currently 18 ecoregions and 9 of them are adjacent and overlapping with ASLs such as:

1. Ecoregion 4 of Natuna Sea has 2 MPAs,
2. Ecoregion 5 of Karimata Strait has 7 MPAs,
3. Ecoregion 6 of Java Sea has 12 MPAs,
4. Ecoregion 7 of Celebes Sea has 7 MPAs,
5. Ecoregion 8 of Makassar Strait has 8 MPAs,
6. Ecoregion 9 of Bali Water's and Nusa Tenggara has 19 MPAs,
7. Ecoregion 11 of Halmahera sea has 6 MPAs,
8. Ecoregion 12 of Banda Sea site Celebes north has 4 MPAs ,
9. Ecoregion 15 of Banda Sea has 4 MPAs
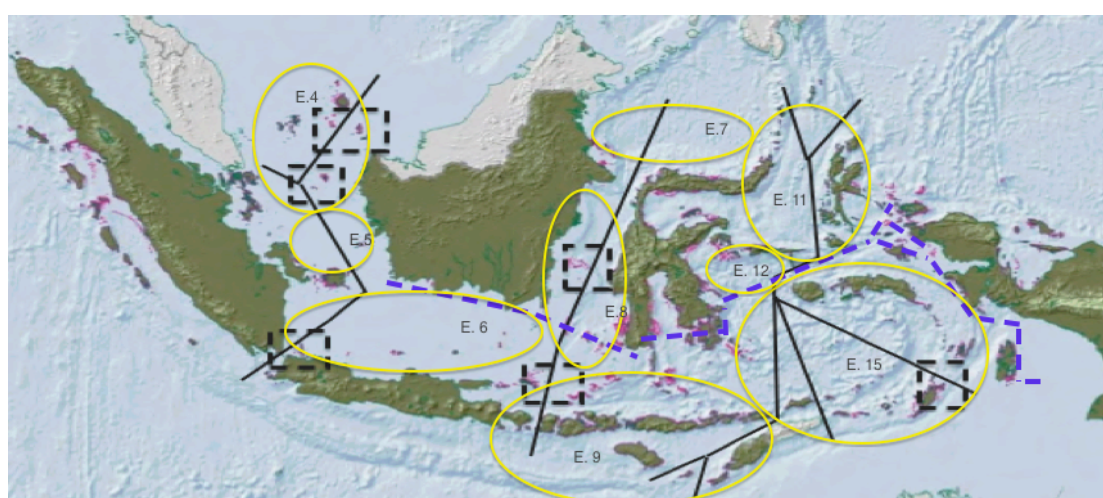
Figure 2: ASL's nearest Ecoregion, Turtle routes, Coral Spread; Modified from Minister of Marine and Fisheries of Indonesia, 2013

Some regions such as Region E.9 (see figure 2) in Savu Sea, are places for feeding, hatchery and cross-border areas (Benyamin Khan, 2006; John Prickrell, 2016). In addition, in certain seasons, the Savu sea is a crossing area, where it glows and whale mating takes place, so that mating whales gather around this sea for a certain season. The waters of Indonesia are always hot and rich food sources making it a favourite area for cetaceans to forage (Benjamin Khan, 2014). Savu Sea is special. According to the ecological ecosystem of the environment, Savu is essential for large marine cetaceans, such as blue whales, Bryde and sperm whales (Benyamin Khan, 2006). In certain seasons, the Savu Sea is a trajectory area and the sea is like the lake where they pass to transit so that they will mate and spawn. In particular season, whales will mate and gather around this sea. This condition is supported by the geographical condition of Indonesian waters that are always hot, rich in food sources and making it a favorite area for cetaceans to forage (Benjamin Khan, 2014).
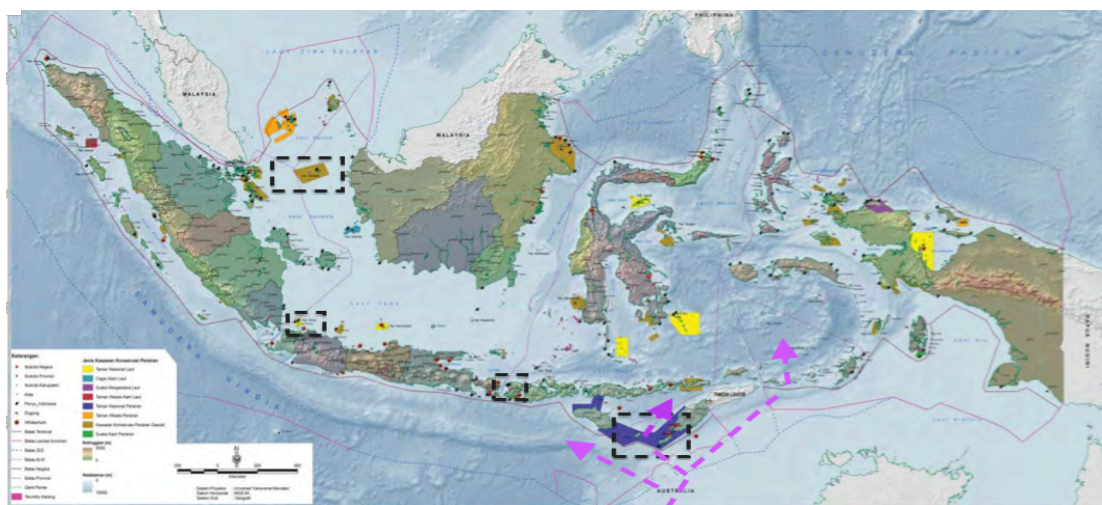
Figure 3: Whales route and feeding and MPA are nearest or overlapping with ASL; Modified from Indonesia's Marine and Fisheries Minister, 2013 and John Pickrell, 2016.

Based on the recent research, it is found the fact that basically, there are many sources of sound under the sea coming from various sources of natural sounds of marine environment, such as mammal communication voices, undersea volcanoes, etc (G. Carleton Ray and Jerry Mc Cormick-Ray, 2014). This condition is further exacerbated by long-term sources of sound pollution that exist as a result of human activities such as offshore drilling and shipping (G. Carleton Ray and Jerry Mc Cormick-Ray, 2014; Benyamin Khan, 2014). This paper will examine how to maintain the relationship between ecoregional interests and ASL.

What are Normal Mode and Unobstrusive Passage?

Article 53 LOSC 1982 has set out on the right of foreign shipping to pass through the archipelagic sea lanes. It its the right of archipelagic states to designate or not to designate the sea lane to be used as an international navigation lane. As an international shipping and flight route, any foreign ship will inevitably cross the waters of the archipelago and territorial sea in the archipelagic state, on an ongoing basis, directly and immediately without any constraint between one part of the high seas or the exclusive economic zone of the high seas or other exclusive economic

zones as the basic concept of archipelagic sea lane rights. Consequently, the archipelagic sea lane regime was born as a new regime and special navigation in the context of international shipping.

Archipelagic sea line passage is a special regime on navigation, because there is a normal mode and unobstructed concept for all user states. Normal mode is a shipping concept where any ship or submarine can make a normal shipping, such as the example of a submarine that is allowed to sail normally by diving when crossing the ASL without necessarily presenting to surface water as well as the warship with the plane accompanied. Before any regulation about this, normal mode is usually used on the high seas where all ships are sailing normally. This is what distinguishes the concept of innocents passage that the ships can not sail freely according to the procedures, in the sense that such a submarine must appear on the surface as it passes using the right of innocent passage.

Meanwhile, unconstructive passage is a shipping free of any obstacles, restrictions, and limitations when passing the archipelagic sea lanes, even there shall be no suspension or discrimination against any passing ship (art. 53, LOSC). Unlike the right of innocent passage, the archipelagic state may stop or delay all navigations for some reasons.

The Impact of Navigation for Marine Environment

As a country located at the intersection of the world's shipping, the Indonesia's sea lanes are crossed by various types of ships such as commercial ships, fishing ships, tourist boats to warships. After ASL designation in Indonesia, every passing ship must sail by using this route and subject to the Archipelagic Sea Lane Passage regime/ASLP regime (LOSC, 1982). This regime recognizes the obstructed passage and shipping rights in a normal mode for each ship. This is what makes Indonesia's ASL to be more crowded and bussy because Indonesia's ASL is one corridor that will be passed by a ship with the ASLP right or which will pass to transit and throw anchor with its innocent passage right.

The following data is all of passages are recorded by Indonesia BIIS's Monitoring (this data does not separate the rights between ASLP and Innocent Passage.

No	Month	ASLP 1	ASLP 2	ASLP 3	Amount/ Month
1	January	2265	1161	434	3.860
2	February	9697	5097	2424	17.218
3	March	3962	1576	877	6.415
4	April	3961	2566	1174	7.701
5	May	3172	2185	1480	6.837
6	June	3827	2254	1043	7124
7	July	2611	1434	696	4741
8	August	4739	2820	1602	9161
9	September	5229	3091	1620	9940
	Total	39.463	22.184	11.350	72.997

Figure 4: Number of Ship Monitoring by BIIS, 2016, Modified from Bakamla, 2016

The above data shows that Indonesia's ASL is crossed by ships with various cross-rights forms such as right of archipelagic sea line passage and right of innocent passage. This occurs after the Indonesian government designates the sea lines, all ships must use this lines when crossing or entering the territorial waters of Indonesia. The problem is that now all of the designated sea lanes are near and even intersecting with Marine Protected Areas (MPA's). This should be a concern, there should be special regulations governing the shipping that passes around the MPA's to prevent pollution and destruction of the MPA's due to shipping, especially shipping with the Right of Archipelagic Sea lanes Passage. Currently, Indonesia has no specific rules for shipping in the sensitive areas, and there is no new consensus between Indonesia and IMO on how to regulate ships passing by right of ASLP. Unlike the case with shipping using the right of innoncent passage, the government may enact national regulations to prohibit, delay or limit the speed and shipping procedures.

Shipping activities can increase sea pollution around the designated sea lanes. According to Benyamin Khan (2015), in the general shipping activities, there are several possible risks of accidents that may occur, such as:

1. Accidental collosions at sea
2. Accidental wreckage on islands (reefs)
3. New port development – support infrastructure
4. Marine pollution from bilge and ballast waters
5. Exhaust emission (sulfur loading)
6. Direct strikes (whales)
7. Noise pollution

Basically, the ship can also be a source of pollution for the marine environment. One example is when the ship sails, the ship can still cause pollution even though the ship does not dump something into the sea or there is no accident, but it still pollute the sea in the form of noise pollution. Based on the interview with Sunaryo[3], he argues that basically the ship itself can cause some forms of pollution and destruction of the environment, such as:

1. Machine can cause noise pollution coming from the propeller and boat engines
2. Ship speed can cause turbidity in seabed and noise pollution (the ship's speed will affect the noise level)
3. The heat generated by cooling machine on ship engines (especially large vessels)
4. Ship propulsion can cause sea flow and make impact of "bald" corals along the routes of navigation
5. Collision with marine mammals
6. Junk ship quietly

The current obvious issue is the noise pollution caused by shipping, the noise due to shipping activities can lead to frequency interference of marine mammals that may threaten them while passing or foraging so that it will be a threat to the food chain and marine ecosystems. Noise pollution from ship navigation may interfere with

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[3] Interview with Ass. Prof. Ir. Sunaryo Ph.D. MRINA. FIMarEST. IPU, scientist from Indonesia Maritime Center, on Mar, 2017

mammalian sonar frequencies. Some marine mammal species such as whales and dolphins are very sensitive to noise levels, even noise can disrupt their navigation systems used for navigation, foraging, communications, or generate clicks for prey echolocation and the environment (Andrew J. Wright for WWF , 2014). Blue whales (*Balaenoptera musculus*) produce sounds usually around or below 20 Hz that are often below the range of human hearing, while dolphin harbor (*Phocoena phocoena*) produces clicks at a frequency of about 140 kHz (Andrew J. Wright for WWF, 2014; G. Carleton Ray and Jerry McCormick-Ray, 2014). When the sound produced by the ship is in the same range (overlapping) with the frequency of marine mammals, the sound may cause noise pollution resulting in disruption of the ability of marine mammal sensors to swim (Andrew J. Wright for WWF, 2014; G Carleton Ray and Jerry McCormick-Ray, 2014). Ideally, today it requires new new technology, new regulations and new obligations regarding the speed of the ship so that sound produced does not interfere with the frequency range of marine mammals (Andrew J. Wright untuk WWF, 2014).

Different areas of MPA's may require different handling for reef-rich marine areas. The importance of precautions agaits possible ship collisions, oil spills, and throwing anchor around the MPA's are indispensable. The cause of the impact of navigation accidents is unpredictable, the impact of loss in MPA area is greater than the non-MPA area, it has potential risks and takes longer to recover (Davit Freestone dan Ellen Hey, 1996). This impact is not only for Indonesia, but generally may also affect on the ecosystems and species of deep-sea fish that pass through and transit at Indonesian seas. Because MPA Indonesia is the point of production and distribution of nutrients to the surrounding marine ecosystems, if these are damaged and polluted, then it will disrupt the ecology of the world's fisheries that may have an impact on the stability of the world's seafood chain.

New Consensus on Indonesia's ALS

The overlapping areas between MPA's and ASL's require policy, goodwill and a desire to maintain its sustainability. Although ASL is designated earlier than MPA, but with the spirit of environmental protection, environmental protection must remain a priority. Implementation of precautionary principles in this case is to be applicable to all shipping in Indonesia ASL's. In Chapter XII, Section 5 explains that all international rules and national laws should Prevent, Reduce and Control Pollution from all sources of marine pollution, mainly due to ship pollution. In the case of the application of ASLP rights in Indonesia's ASL, all international shipping must be carried out under a new code of conduct which is in accordance with MPA's sensitive condition.

This shipping code of ethics and sensitive marine condition of Indonesia should be immediately informed and discussed to the International Maritime Organization / IMO and user states enter new research data and privileges of Indonesian MPA. Based on Article 211 (1) that "rules and standards shall, in the the same manner, *be re-examined* from time to time as necessary". This means that if new research finds that the nearest Indonesian ASL overlaps with MPA protection interests, then the old rules can be reviewed. There is no exception with normal mode and unconstructive concept in Indonesia's ASL, the concepts can also be reviewed for the sake of environmental protection. As well as article 210 of LOSC that "Dumping" also

"…regulate standars and recommendation practices and procedures to prevent, reduce and control such pollution……..shall be re-examined from time to time as necessary".

For the sake of sustainability of the marine environment and green navigation, the review and nullification of normal mode and unconstructive passage concepts can be applied without having to change the LOSC article and without closing ALS for one protected marine interest. Both of these can work together, in a new consensus between Indonesia, user states and IMO to change or add new articles to the 19 Rules of Archipelagic Sea Line Passage (19 Rules ASLP) in Indonesia, as a special rule. What is 19 Rules of Indonesian ASLP? This is a special regulation that must be obeyed and apply when ships and aircraft passing through Indonesia's ASL. Like LOSC, Indonesian 19 Rules can also be changed and revised to generate a new consensus within the sensitive ASL's areas (Dhiana Puspitawati, 2005; Leonard C. Sebastian et.al, 2014). By law, 19 Rules is a special regulation / lex specialis for all shipping in Indonesia.

Currently, the concept of normal mode and unconstructive passage in ASLP are no longer relevant. Based on Article 211 of LOSC, it can be ascertained that the ship can also cause pollution so that with the support of the latest research result, the changes in the old provisions into new rules can be carried out. A new consensus is needed to prevent the impact of shipping due to the concept of normal mode and unconstructive passage on Indonesia's sensitive, adjacent or overlapping sea lanes (ASL's) with MPA's. Indonesia, User state and IMO can create a new consensus based on the spirit to protect marine. It can be conducted without having to change Article LOSC, but simply by changing 19 Rules. There are several ways that can be carried out to the concept of new 19 Rules, such as by adding articles, revising, or making new rules in 19 Rules. A better solution would be to set up a sensitive area and submitted to IMO along with a special code of ethics in accordance with international shipping in the sensitive areas (Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas).

Moreover, IMO also supports the effort to prevent marine protected areas, on December 1, 2005,   IMO has revised *Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas /* PSSA. This guideline explains that: PSSA is an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities. At the time of designation of a PSSA, an associated protective measure, which meets the requirements of the appropriate legal instrument establishing such measure, must have been approved or adopted by IMO to prevent, reduce, or eliminate the threat or identified vulnerability (Resolution A. 982 (24), 2005).

It is clear that IMO as an organization rezognized by LOSC recognizes and prioritizes shipping safety in order to prevent pollution and destruction or the marine environment due to shipping activities. The more specific IMO rules on the determination and sailing procedures in the MPA are set out in Resolution A.982 (24) on December 1, 2005 on "Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas". This provision recognizes and legally permits each country to designate Particularly Sensitive Sea Areas (PSSA) on an international

or regional scale. This consideration is based on the importance of conservation area for the benefit of biodiversity and other fields with ecological, cultural, historical, archaeological, socio-economic or scientific significance (PSSA, 2005). In fact, PSSA has a guidance on procedures and to designate PSSA areas.

The designation of PSSA is one of the real forms of IMO support in order to protect the marine environment. Unobstructive and normal mode concepts need to be revised and renewed. Considering that between human and environmental interests must be able to go hand in hand with the concept of sustainable development. New code of ethics and special treatment for shipping in some Indonesia's ASL's which are sensitive areas should be performed immediately. There are many reef fish, endangered fish, and special ecosystems that must be protected. Considering that some of shipping impacts have proven that the ships may cause pollution and damage to the marine environment.

To prevent pollution such as noise pollution, dumping, etc. due to shipping, it is necessary to regulate the speed of the ship, for example, the Savu Sea which is the territory of whale passing. Each user state should ideally decrease the speed of ship or even be able to temporarily halt the shipping, especially when marine mammals encounter the ship during the mating season or spawning and foraging. The need for a balance between shipping and MPA's can be applied by revising 19 Rules of ASLP as a solution. This can be carried out in accordance with the mandate of Article 211 LOSC of "…probability to **re-examined** regulation base on new research to marine protection."

Conclusion

This project provides for an opportunity to gain insight into the premise that further efforts on marine studies in Indonesia should be made especially in marine areas that are rich in biodiversity and also list the features and species of protected marine mammals. Such findings might also be important because overlapping between CTI-FF areas and archipelagic sea lanes requires special treatment. All shipping should adjust with CTI-FF conditions, such as reef protection areas, the application of precautionary principles that are needed by renewing the application of normal mode and unobstructive passage concepts. Both concepts are irrelevant to some archipelagic sea lanes that are sensitive and risky to the dangers of pollution and destruction.

A new consensus is needed between Indonesia, the user states and IMO to make a new regulation on code of conduct of shipping in Indonesian ASL's without changing LOSC 1982. The method offered is to replace and add some articles in 19 Rules of ASL's. Special treatment and code of conduct for ASL's sensitive areas must be implemented immediately such as by slowing ship speed, using technology to reduce noise from ship engines, delaying shipping that will only be carried out in certain places, such as areas of mammal migrary species trajectory, etc. Those powerful ways are some solutions to prevent pollution and damage in sensitive areas etc. With some of these suggestions, it hopefully enables to prevent pollution and destruction of Indonesia's MPA.

In addition, it also requires international cooperation, good will and a common goal to create green navigation in Indonesian ASL. Lastly, it is therefore argued that the

importance of the parties' mutual will is to limit the use of normal mode and unobstructive concepts through a new consensus. The designation of PSSA in some areas will facilitate the arrangement and code of conduct of the shipping.

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Analysis of Household Debt Inequality in Thailand

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Abstract

Inequality has been usually mentioned in term of income inequality to evaluate people's well-being. This research examined another dimension of inequality, which is debt inequality. Among people who have the same level of income, some of them have high debt while some people have not. Therefore, we should not neglect this aspect because indebtedness makes them vulnerable to unstable life.

This research mainly used household data, known as the Socio-Economic Survey (SES), compiled by the National Statistical Office of Thailand. To estimate the debt inequality, people were classified according to the level of income, and the distribution of debt was estimated for each income group. The results revealed that there was debt inequality within the same level of income group. Low debt inequality was not always good because it means that households have debt equally. Besides, it can be also positively interpreted that they have small amount of debt similarly. This depends on average household debt of each group, while high debt inequality can be implied that there are large differences between debts of each household in the same group. There were only some households with low debt, i.e., they did not borrow the money for living despite some households having high debt.

This research points out the issue that only the measure to elevate income level may not be enough to sustain people's well-being. Therefore, the government and policy makers should emphasize to implement the effective policies to lessen household debt together with increasing people's income that will lead to real well-being and self-sufficiency.

Keywords: Household debt inequality, Inequality, Well-being policy

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Introduction

Thailand have been put highly effort to develop the country and passed from developing country to be a middle-income country since 2011. The statistic on household debt showed decreasing trend over the past three decades. The proportion of the poor in Thailand decreased from 65.17 percent of overall population in 1988 to only 7.2 percent or 4.8 million poor people in 2015 (NESDB, 2016).

However, in order to reduce more about the severity gap and increase the quality of life and well-being for people, the aspect of inequality is still serious issue. The government policy have focused on alleviate level of household income but among people who have the same level of income, some of them have high debt while some people have not. Inequality has been usually mentioned in term of income inequality to evaluate people's well-being. This research examined another dimension of inequality, which is debt inequality. The aspect of household debt should also be emphasized because indebtedness makes them vulnerable to unstable life. Therefore, the aim of this research is to examine debt inequality within the equal income group.

Methodology and Data

This research mainly used household data, known as the Socio-Economic Survey (SES), compiled by the National Statistical Office of Thailand in 2015. To estimate the debt inequality, people were classified into 5 income groups according to each rational classification (Table 1). The same group represents the equal income level, but the aim of this research is to examine that among equality in term of income group, there may be inequality due to household debt.

Group	Level of Income (Baht/Month)	Classification
1	<2,644	➢ Refer to household under the poverty line of Thailand in 2015, reported by the National Economic and Social Development Board (NESDB, 2015)
2	2,644-8,999	➢ Based on the poverty line of 2,644 Baht per month.
3	9,000-14,999	➢ Based on the minimum wage of 300-310 Baht per day (Ministry of Labour, as of 1 January 2017)
4	15,000-24,999	➢ Refer to average starting income per month for Bachelor.
5	>=25,000	➢ Refer to average starting income per month for Master's Degree.

Note: around 34 baht equal to 1 USD

Table 1: Level of Income Group and Classification

Subsequently, the distribution of debt was estimated for each income group. The definition of debt used in this calculation was average debt repayment per month of household. The Gini Coefficient is employed to investigate in term of debt inequality instead of income.

Gini coefficient of debt inequality is derived from the following equation:

$$Gini = 1 - \sum_{i=1}^{n}\left[\left(D_i + D_{i-1}\right)\left(X_i - X_{i-1}\right)\right]$$

Where
Di = cumulative proportion of household debt
xi = cumulative proportion of number of household

The Gini coefficient which known as an inequality index was developed by Gini, 1912. The scale of Gini coefficient result is between 0 (equal distribution) to 1 (complete disparity). The lower Gini coefficient indicates more equality. On the contrary, the higher Gini coefficient indicates more inequality.

Results and Discussion

The results of Gini coefficient showed household debt inequality of each 5 income groups. As illustrated in Figure 1, Group 1 had highest debt inequality with the Gini coefficient at 0.9110. The Gini coefficient decreased respectively to Group 2 at 0.8735, Group 3 at 0.7915, Group 4 at 0.7477 and the lowest debt inequality in Group 5 with the Gini coefficient at 0.6791. The Gini coefficient of each group was rather high which indicated huge inequality among household in the same income group. This can be implied that there were large differences between debts of each household in the same group. There were some households with low debt or even no debt despite some households having high debt.
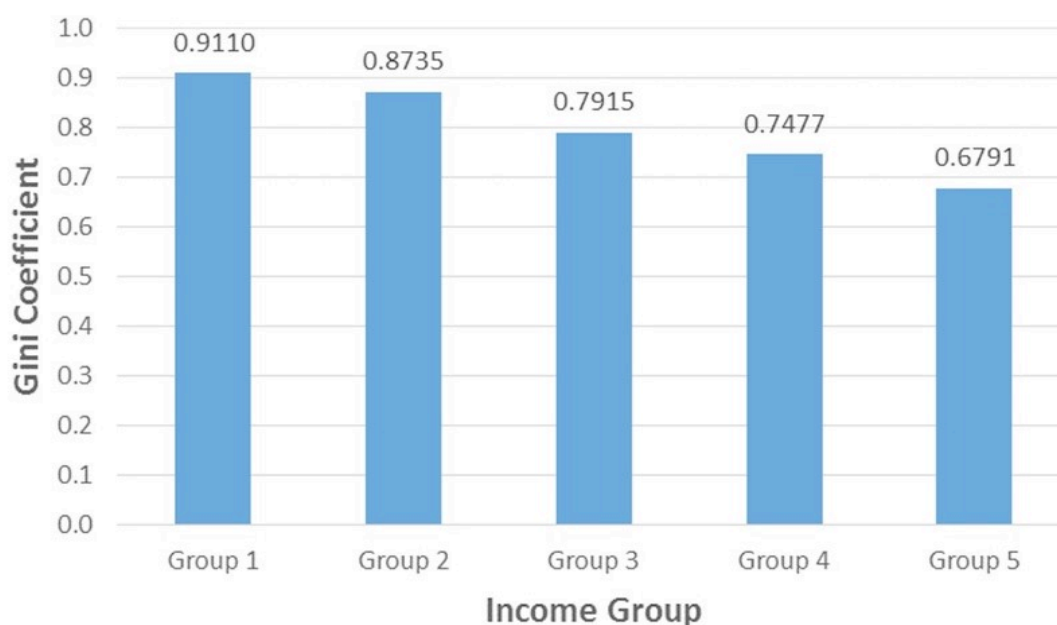
Source: Author's estimate

Figure 1: Household Debt Inequality by Income Group

Furthermore, percentage of indebted household and average household debt repayment per month of each group were estimated as well. The results showed that the groups which had lower level of income also had smaller percentage of indebted household from all household of those groups, while the groups which had higher level of income also had larger percentage of indebted household (Table 2). There was 19.52 percent of indebted household to all household in Group 1. There were 26.91, 42.68, 50.75 and 64.46 percent of indebted household for Group 2, Group 3, Group 4 and Group 5, respectively. Moreover, the average household debt repayment per month of each group resulted in the parallel direction except for average household debt of Group 2 that lower than that of Group 1. However, the highest income group had the highest average household debt repayment per month at 8218.77 Baht per month. This may be because low income group cannot afford large amount of debt easily, therefore, it is quite difficult to take on loan from formal sector. However, higher income group that seem to be self-reliance but from the data some household have had high debt. As estimation of Gini coefficient, the highest income group had the smallest difference amount of debt among the other income groups as a result of the lowest Gini coefficient, while percentage of indebted household was the highest. This implied that the lowest debt inequality of this group means they are indebted quite equally. Although people gain the high income, but indebtedness makes them vulnerable to unstable life.

Group	Level of Income (Baht)	No Debt HH (%)	Indebted HH (%)	Average HH Debt (Baht)
Group 1	<2,644	80.48	19.52	1134.30
Group 2	2,644-8,999	73.09	26.91	828.71
Group 3	9,000-14,999	57.32	42.68	1553.36
Group 4	15,000-24,999	49.25	50.75	2595.36
Group 5	>=25,000	35.54	64.46	8218.77

Source: Author's estimate based on SES data
Note: around 34 baht equal to 1 USD

Table 2: Percentage of Indebted Household and Average Household Debt Repayment per Month by Income Group

To investigate the percentage of indebted households by the purpose of loan, all indebted households of each income group were selected and divided into loan from formal (100% in total for each group) and informal sector (100% in total for each group). As shown in Figure 2, most of household in every groups needed the loan for household consumption.
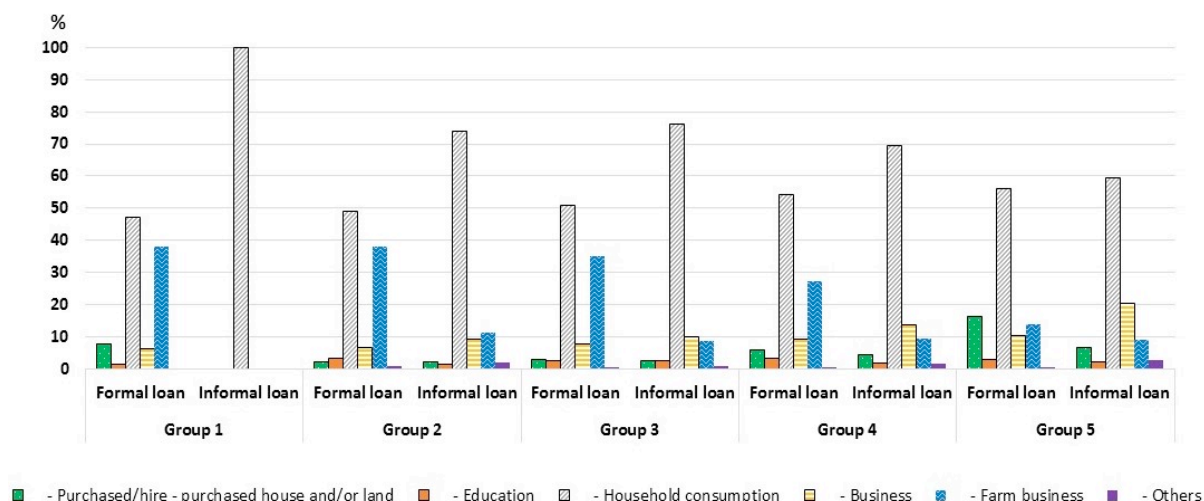
Figure 2: Percentage of Indebted Household by Purpose of loan

Conclusions

This research points out the issue that only the measure to elevate income level may not be enough to sustain people's well-being. Although people earn high income and seem to be self-reliance, they are still vulnerable to unstable life if they have high debt and have to repay large amount of money. As these results, the higher income group also have higher debt on average. Furthermore, the result of Gini coefficient revealed that the highest income group had the lowest debt inequality together with the highest percentage of indebted household. The results implied that they are indebted quite equally not no debt equally. The effective way to lessen household debt is a vital issue for all, especially for the low income household which tend to have low ability to repay the debt.

Therefore, the government and policy makers should emphasize to implement the effective policies to decrease household debt together with increasing people's income that will lead to real well-being and self-sufficiency in the long term.

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Recent Computer Applications in Marketing

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Abstract
Especially in recent years, marketing efforts of businesses have gained more importance along with the intense competition. Creating value to the target market and facilitating the life of consumers have become the primary goals of the firms. There is no doubt that offering simplicity to the consumers will affect the success of businesses in competitive environment. Technology is an important input in the wellness of the firms and customers. Hence, marketing needs to be in a close contact with computer related technologies. Computer science is one of the disciplines that encompasses these technologies and aids the marketing managers' decision process. As a marketing decision maker, it is important to utilize the benefits of recent computer applications. In this study, among these applications, we mainly focus on geographic information systems, computer vision, augmented reality, eye tracking and data mining. These technologies and their complementary roles in marketing will be discussed in detail along with the real life examples. It is believed that the study is expected to draw managers' attention and thus, support the survival of the firms by satisfying the consumer expectations, maximizing profits and creating a value to the target market.

Keywords: Marketing, businesses, computer related technologies

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Introduction

In today's world, consumer's needs and expectations have changed a lot. Based on this turbulent environment, businesses have started to spend their effort to meet the target markets expectations and needs. Herein, technology aids businesses to struggle with these various wants. As time pass by, technology is started to affect functions of the businesses differently.

Marketing is one of the functions of business affected by technological changes. In the concept of societal marketing three main considerations were society, consumers and company. According to the societal marketing concept, companies could gain profits by satisfying the consumer's wants and creating welfare for people. At this point, by the help of the technology it could be possible to make both companies and consumers happy.

Decision makers have to integrate technology and marketing in order to increase the value of marketing efforts of the firms. Especially in recent years, in the marketing literature it is started to emphasize that the focus of marketing is creating value to the consumers. By the help of the computer related technologies, value creation is started to be easier and content of marketing activities are started to change. In other words, computer related applications have an important role in the reshape of marketing efforts of the firms. Today, it is easily seen that many computer applications are used in the marketing activities of the businesses. Apart from these, utilizing from computer related technologies present both firms and consumers various advantages. Therefore, in order to take effective marketing decisions, using technology in marketing activities would be so important.

In this paper, especially the contributions of computer related technologies from the side of businesses have taken into consideration and discussed. Primary aim of the study is to provide some information to the marketing decision makers about the computer related technologies that ensure success in the competitive environment. For this purpose, we mainly focus on computer related technologies such as geographic information system, computer vision, augmented reality, eye tracking and data mining. In the study, mentioned computer applications in marketing side are examined. First of all, the definitions of computer applications are introduced. Following the definitions, applications of computer related technologies in marketing are examined separately.

Definition of Marketing

Contemporarily, marketing has a precious place in the daily activities of businesses. At one time, marketing is thought as a business function that only promotes the goods and services of the firms. However, meaning and function of marketing has changed a lot in recent years. In other words; being value oriented, solving the problems of the consumers in a short time, developing and maintaining long term customer relationships have gained more importance than before. These points have caused some changes in the definition of the concept.

In the literature, various definitions of marketing can be found. Grönroos (1990: 138) states that "marketing is to establish, maintain and enhance relationships with

customers and other partners, at a profit, so that the objectives of the parties involved are met''. Kotler and Armstrong (2012: 29) defined marketing as ''the process by which companies create value for customers and build strong customer relationships in order to capture value from customers in return." According to the definition of American Marketing Association which was approved in July 2013 "marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large."

Technology and Marketing

Technology can be defined as "know-how, more specifically, as the information required to produce and/or sell a product or service (Capon & Glazer, 1987: 2)". Like in the every functions of business, also in the activities of marketing some changes have occurred. In satisfying the changing expectations of consumers, catching up the technological changes and implementing them in the field of marketing is very important.

Technological developments affect the various marketing related activities of the businesses. Major influences can be listed as below (Capon & Glazer, 1987: 3):
- Changing the product life cycles
- Changing the definition of market segments
- Causes new sources of competition
- Creating changes in the structure of the businesses and its functions
- Leading to increased globalization of markets

Contemporarily, in the field of marketing most of the computer related technologies are used intensely. In other words, marketers have started to integrate their activities through various computer related technologies to gain more efficiency in marketing activities (Quesada-Pineda, Brenes-Bastos & Smith, 2017). Geographic information system, computer vision, augmented reality, eye tracking and data mining are a few of them which were examined in this study.

Geographic Information System in Marketing

Geographic Information System (GIS) "is a spatial information system used to import, edit, visualize, analyze, and output spatial and non-spatial information stored in a computer database (Jensen & Jensen, 2013: 21)."

Geographic information systems provide important information both to service providers and consumers. Instead of using traditional forms of marketing, geographic information system based marketing approaches become more popular. This allows visualizing the locations of customers by analyzing their demographic, purchasing and spending characteristics. A geographic approach to reach the target market is summarized in four steps (ESRI, 2010):

1) *Monitor the customers:* The largest concentrations of the customers are located by map analysis.
2) *Profile and segment:* With the help of geographic customer databases, each transaction can be analyzed to identify the customers and their buying habits.

3) *Understand needs and behaviors:* The wants and needs of the customers are matched with products and offerings.
4) *Find and target:* Targeting new customers with similar interests and needs is provided by customer segmentation based on geographic characteristics.

Marketers can also utilize geographic information systems in certain situations such as (Jensen & Jensen, 2013: 209-222);

- Service area of a particular facility
- Location-allocation modeling for facility location
- Maximization of market share
- Target market share

Specifying service area of a particular facility is one of the most often used network analysis applications in GIS. Facilities like restaurants, automated teller machines or police stations can be considered as geographic features. The aim is to find a geographic region that encompasses the network that can be reached within a value such as travel time or distance away from the facility. In a different application, location-allocation modeling for facility location is considered. This application aims to find the best location for new facilities that will service. Maximization of market share can be used to solve competitive facility location problems. In the presence of competitor facilities, it is aimed to select the optimum location for new facilities that maximize market share. Similarly, in target market share problems, a specific target market share (e.g. 60%) is identified. To reach the specified target market share, the minimum number of facilities is chosen as candidates (Jensen & Jensen, 2013: 209-222).

In tourism marketing, retrieving information related to tourist locations and presenting visual images or digital videos for tourist sites are the basic applications for tourists who utilize GIS. In a specific study, a GIS-based information system is proposed to enhance the competitive advantage of travel agencies. It is aimed to meet the sophisticated expectations and needs of the customers who make their reservations through travel agencies. The proposed system enables queries on geographic features to retrieve lodging properties and certain geographic information around a location (Ilgaz Sümer, Sümer & Atasever, 2015).

Computer Vision in Marketing

Computer vision is the second computer related technology that could be used in marketing. "Computer vision (or image understanding) represents a subfield of Artificial Intelligence (AI) which aims at the analysis and interpretation of visual information (Schierwagen, 2001: 3)." There are a variety of applications where marketing intersects with computer vision such as interactive billboards, retail optimization analytics, tourism marketing.

In our daily life, we are frequently confronted by thousands of billboards everywhere we go. Hence, it is so difficult to attract the awareness of customers. By the help of the interactive billboards it could be easy to pull in consumers. There are a variety of smart advertisement billboard applications based on computer vision techniques. Among these attempts, most of them are based on the recognition of age and gender

(Demirkus, Garg & Guler, 2010). Besides, the promotional messages can be sent by developing the customer profiles through the detection of accessories worn or some facial features. Once the analysis of the customers is completed, the smart billboard systems suggest pictorial or video advertisements immediately.

On the other hand, retail optimization analytics which enables to understand the shopper behavior and store operations become easier with computer vision. With this technology, demographic analysis of customers can be done easily. Besides, customer lines at registers, door entry points or return counters can be monitored. Extraction of foot traffic patterns and occupancy rates can be easily performed by retail optimization analytics (Senior *et al.,* 2007). Finally, shopping dwell time, which can be regarded as a powerful metric in revealing the behaviors of customers, can be estimated with computer vision algorithms (Video Intelligence Platform, 2017).

Computer vision also enriches and facilitates tourism marketing by analyzing and interpreting the visual information. In a specific example, a smart hotel room automation system is developed (Ilgaz Sümer, Uğur & Sümer*,* 2016). Hand gestures are recognized by computer vision techniques. Using the signals generated by the predefined hand gestures, the guest can control the peripherals located in the room. With this system, lodging properties can gain competitive advantage and reduce their costs to a certain extent.

Augmented Reality in Marketing

Augmented Reality (AR) or Mixed Reality (MR) is another computer related technology that could be used in marketing. Augmented reality "is a new technology that involves the overlay of computer graphics on the real world (Silva, Oliveira & Giraldi, 2003: 1)."

Experiential marketing applications are the typical examples of augmented reality practices in marketing. According to Wu and Tseng (2015: 105), experiential marketing is defined as ''to create a unique experience for customers and induce their purchase intensions by getting them to sense, feel, think, act, and relate." Augmented reality can be used as a promotional tool in experiential marketing. Moreover, it can create customer satisfaction by experiencing products. Augmented reality can also provide personalization and can be used as a contemporary tool in marketing (Jin & Yazdanifard, 2015).

In particular, virtual mirror technology is an interactive image technology, which allows consumers to personalize virtual models and to try on products in a virtual setting (Cho & Schwarz, 2012). In a preliminary work conducted by Özüdoğru *et al.* (2016), a virtual mirror system for eyeware is proposed. In this system, customers can select glasses, sun glasses or contact lenses from the product range. Then, a portrait photo is taken by the system and customers can try the selected products on their photo. Additionally, customers are able to purchase the experienced products and share them via social media. The developed system is believed to enhance the interaction between business and customer.

Eye Tracking in Marketing

Eye tracking is the fourth computer related technology, which is examined in this study. Eye tracking "commonly refers to the technique used to record and measure eye movements (Tobii Technology, 2010)." Eye tracking offers an objective way to measure person's visual attention in a scene. With the advances in eye tracking technology, there are several number of studies based on the combination of eye tracking and human behavior. Marketing is one of the major disciplines for eye tracking research. In the literature, it is reported that most of the approaches of eye tracking mainly focus on online advertising, digital marketing and shopper marketing (Borys, 2014).

In marketing and consumer research applications, consumers' attention and spontaneous responses are measured by eye tracking technology. The data collected by the shopper's eye help marketers to communicate with their customers effectively. In the field of shopper research, eye tracking is used to estimate the shopper behavior. This information is valuable for positioning products and marketing. To sum up, the use of eye tracking technology in marketing provides; how shoppers navigate the shelfs in a store, which visual elements are noticed or ignored and how shoppers interact with products on the shelf.

Data Mining in Marketing

Data mining "is the exploration and analysis of large quantities of data in order to discover meaningful patterns and rules (Radhakrishnan, Shineraj & Anver, 2013: 41)." Actually data mining is one of the efficient ways of communicating with customers. Especially in direct marketing campaigns, customer related information such as name, address, phone number, e-mail address can be obtained easily (Radhakrishnan, Shineraj & Anver, 2013: 43-45). Besides that electronic customer relationship management (ECRM) activities have gained importance with data mining. Satisfying the needs of the customers leads to create loyal customers (Scullin et al., 2010). Furthermore, using data mining in marketing activities enables firms to contact with true customers. Stored data provides to create strong relationships with them. Usage of the collected data helps to make some assumptions about the expectations of the consumers and create awareness (Radhakrishnan, Shineraj & Anver, 2013: 43-45)

Data mining is used in various marketing applications such as planning for a new product introduction, improving direct marketing campaigns, customer churn analysis and evaluating results of a marketing test.

Conclusion

Marketing is essential to the success of the businesses. In today's world marketing activities integrated with technology bring more success to the marketing departments of the firms. Therefore, decision makers must be educated on the topics such as the relationship between technology and marketing, importance of technology in marketing and technological applications in marketing etc.

In this study especially the computer related technologies such as geographic information system, computer vision, augmented reality, eye tracking and data mining are discussed. As it was denoted before, each of these technologies effect the marketing activities of the businesses positively in a differential manner. Computer related technologies both decrease the cost of the marketing activities and promotes the marketing activities of business. In this study only five computer applications were discussed. Moreover, this is the major limitation of the study. It is believed that in the future, along with the new technological developments marketing function of the businesses will gain important acquisitions and be modernized.

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Internet Resources

"Definition of Marketing" by American Marketing Association:
https://www.ama.org/AboutAMA/Pages/Definition-of-Marketing.aspx

"GIS for Marketing" by ESRI:
 www.esri.com/library/brochures/pdfs/gis-for-marketing.pdf

"Retail Optimization Analytics" by Video Intelligence Platform:
http://www.3vr.com/sites/default/files/assets/retail-optimization-analytics-datasheet.pdf

"Tobii Eye Tracking–An introduction to eye tracking and Tobii Eye Trackers" by Tobii Technology:
http://www.acuity-ets.com/downloads/Tobii%20Eye%20Tracking%20Introduction%20Whitepaper.pdf

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Grammar Teaching Approaches for Adult EFL Learners in Indonesian Perspective

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Abstract

Grammar teaching pedagogy has been rigorously reconceptualised as a result of perpetual shift from one teaching method to another. A number of dimensions dichotomizing grammar teaching approach appears in response to the disparate degrees of grammar positioning in second or foreign language teaching. This paper attempts to rationalize that grammar teaching for adult learners in Indonesian non-formal educational context is more appropriately approached through the deductive and explicit teaching. The presented rationale is substantiated from the literature drawing upon theoretical basis of English language teaching (ELT) as well as my professional practice as an English teacher in the referred context. The findings reveal that there is a broad spectrum of variables to determine how grammar teaching is contextually approached. This paper specifically addresses language complexity gap and language needs as two determinants in implementing the deductive-inductive and explicit-implicit grammar teaching for Indonesian EFL adult learners. Two examples of classroom activities are presented as the contextual manifestation of deductive and explicit grammar teaching approach. The implication for EFL grammar teaching indicates the necessity to consider the context-bound determinants prior to putting a particular grammar teaching approach into practice.

Keywords: grammar teaching approaches, deductive, inductive, explicit, implicit

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Introduction

The perpetual development of English language teaching methodology in the last five decades has significantly impinged on the positioning of grammar in language teaching and learning. Disparate degrees of the importance of teaching grammar exist across teaching methodologies due to the discrepant pedagogical principles underpinning them. In general, the literatures indicate that there is a split in the conceptualization of the role of grammar in the English as a foreign language (EFL) field. One end of this continuum, which Fotos and Ellis (1991) refers to as the zero position, is regarded as the anti-grammarian. Language teaching methodologists, such as Krashen (1983) and Terrell (1977), taking this stance believe that language learners are able to acquire language naturally without any grammar intervention during language acquisition process.

Krashen (1983), in favour of the natural approach, argues that learners subconsciously acquire mastery of the target language providing that they are sufficiently exposed to comprehensible input. He further maintains that this non-interventionist acquisition process drives forward the development of formal language rules through meaning-rich language exposure in natural communication. In the same vein, Terrell (1977) argues that in the natural approach learners are provided with ample opportunities to acquire foreign language through a wide a range of communicative activities where error correction is avoided and learners are allowed to respond in both their first language (L1) and the target language (L2). Having exposed to the comprehensible input through communicative activities engagement, learners are considered able to proceduralize – being able to operate and function effectively without necessarily being able to state the rules (Hulstijn, 2005) – and subsequently internalize language features facilitated by innate cognitive processing.

In the naturalist view, formal grammar instruction is considered unnecessary for the acquisition of linguistic competence especially grammar competence in a foreign language. However, recent studies reveal that attending largely on comprehensible input and comprehensible input only does not promote language accuracy development. For example is Fotos and Ellis's (1991) work on juxtaposing the traditional teacher-fronted grammar lesson and the communicative grammar task lesson in terms of language accuracy attainment. Subjects of the study were given a pretest prior to treatments commencement, a posttest at the end of the treatments, and a final test which was conducted two weeks after the treatments. The findings revealed that in terms of language accuracy the former group gained a 14% net increase whereas the latter group gained only 10% net increase after given the treatments. It indicates that exposing learners to comprehensible input does not consequentially impact on learner's accuracy development, and hence there should be another alternative in approaching teaching grammar.

The other end of the continuum is regarded as the pro-grammarian. From this standpoint grammar is considered to play a central role in foreign language learning. Although fluency-oriented approaches, for example the natural approach and the communicative language teaching (CLT) approach, do promote the target language fluency development, there are certain points where L2 learners are unable to attain high level language accuracy without formal and explicit grammar instruction especially within acquisition-poor environment (Lightbown & Spada, 2008; Nazari &

Allahyar, 2012). Therefore, grammar, which Perez-Llantada and Larsen-Freeman (2007) regard as the fifth skill in addition to the other four productive and receptive language skills, should be formally instructed and should constitute one of the key components in L2 learning.

An example of language teaching methodology epitomizing this view is the grammar-translation method. It is characterized by prioritizing accuracy over fluency and language learning occurring at the sentence level. Proponents taking this side, such as Chastain (as cited in Larsen-Freeman, 2000), have substantiated the importance of grammar teaching in L2 learning. However, there is also a number of evidence that attending only the language form does not accommodate language fluency development inasmuch as L2 learners are unable to proceduralize language form into communicative language use.

For example, a study conducted by Burgess and Etherington (2002) attempted to investigate several challenges and outcomes in the implementation of formal grammar instruction from teacher perspective. The study involved 12 teaching English to speakers of other languages (TESOL) teachers in English for academic purposes (EAP) in British universities. This program was attended by international students whose first language was not English. It was revealed that the subjects of the research affirmed that formal language instruction well-equipped L2 learners only in terms of declarative language knowledge – being able to explicitly verbalize the language rules (Hulstijn, 2005) – but not their procedural knowledge. Krashen (1999) argues that such artificial acquisition experienced by L2 learners leads to consciously learned competence that will eventually fade over time. Inasmuch as the pro-grammarian pedagogy fails to serve the very core of L2 learning which is enabling learners to function fluently and accurately in the target language, there is a need of a reconciliation between the two ends of the continuum.

This study substantiates that the manifestation of grammar teaching in Indonesian EFL context falls somewhere in between the continuum. As illustrated in Figure 1, this positioning is regarded as a determinant-based grammarian in which it is believed that a number of determinants impacts on the practical application of grammar teaching. Proponents standing for this side, for example Corzo (2013), Fotos (1993), Fotos and Ellis (1991), and Widodo (2010), argue that formal grammar instruction is potential in providing both direct and indirect effects to L2 acquisition. Celce-Murcia (1985, 1991) has attempted to offer a framework of reference from which language teachers can determine to what extent grammar is appropriately and proportionally approached in L2 teaching and learning. It consists of two classifications of variables which are the learner variables and the instructional variables. The former encompasses age, proficiency level, and educational background whereas the latter encompasses language skills, register, and language needs. These specific variables, in line with Kumaravadivelu's (2006) conceptualization on particularity parameter of post-method pedagogy, are fundamental to consider before putting grammar instruction into classroom practice.
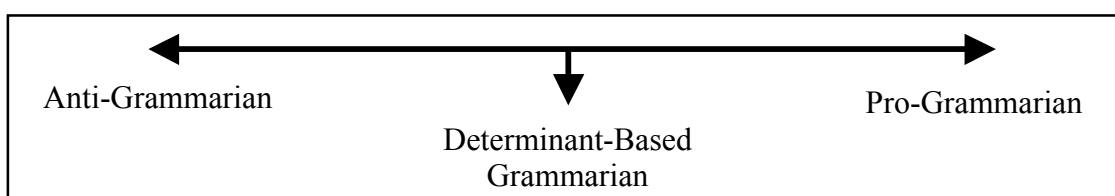
Figure 1. Positioning of determinant-based grammarian

This study primarily draws attention to theoretical bases, empirical findings as well as professional practices in the EFL discipline. The scope of context, in accordance with my professional practice in EFL teaching, is the non-formal educational institutions in the municipality of Yogyakarta, Indonesia. Firstly, it presents the broad spectrum of dimensions in the teaching of grammar, and afterwards limits its scope to the deductive-inductive and explicit-implicit dimensions of grammar teaching. Secondly, it substantiates two determinants in approaching grammar teaching. They are the language complexity gap and the language learning needs. Thirdly, it exemplifies two activities manifesting deductive and explicit grammar teaching approaches. Finally, it provides the summation and implications to EFL teaching as well as direction for future research.

Dimensions of EFL Grammar Teaching

The manifestation of grammar teaching in EFL is presumably differently interpreted across contexts. Even if two contexts share similar pedagogic fundamentals, grammar teaching is highly likely to be approached in different ways. Proponents in the EFL discipline have attempted to pinpoint the broad spectrum of grammar teaching dimensions as illustrated in Figure 2. For example, Ellis (2006) identifies that in its practice grammar can be approached through the intensive-extensive dimension (cf. Corzo, 2013), the mass-distributed dimension, and the integrated-separated dimension (cf. Afsar & Rasheed, 2010). Ghabanchi (2010) and Hulstijn (2005) further add the incidental-intentional dimension. However, a myriad of discussions on the grammar teaching approach has been addressed to the deductive-inductive dimension (see Felder & Henriques, 1995; Fischer, 1979; Haight, Herron & Cole, 2007; Krashen, 1975; Mohamed, 2004; Mohammed & Jaber, 2008; Seliger, 1975; Shaffer, 1989) and the explicit-implicit dimension (see Burgess and Etherington, 2002; Corzo, 2013; DeKeyser, 1997; Doughty, 2008; Fotos, 1993; Fotos & Ellis, 1991; Garrett, 2003; Lightbown & Spada, 2008; Mohammed & Jaber, 2008; Montgomery & Eisenstein, 1985; Scott, 1989, 1990; Widodo, 2010).
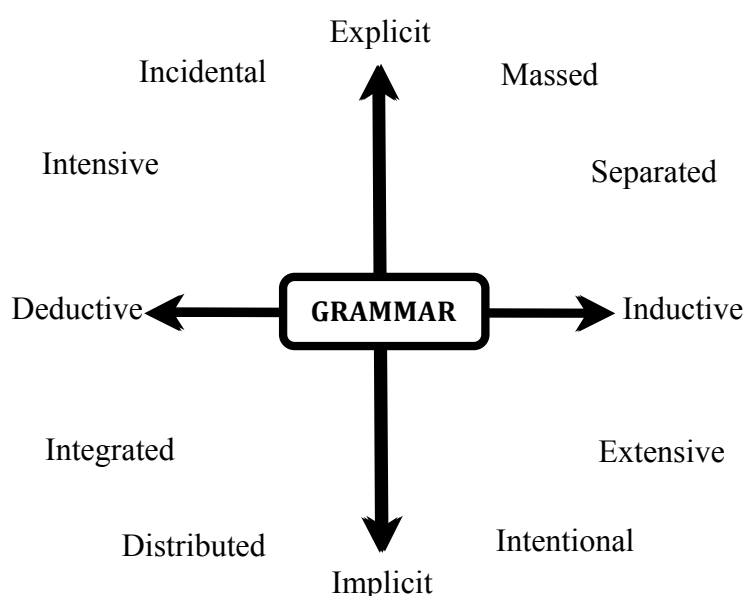
Figure 2. Dimensions of grammar teaching approaches

The study is directed to cater the deductive-inductive and explicit-implicit dimensions of grammar teaching especially in Indonesian context. Majority of empirical studies on EFL grammar teaching in relevant dimensions have been conducted, yet only a little has been framed within the Indonesian EFL context. Therefore, this study supplements the concurrent discussions and enlightens the role of particular determinants in the applicability of the deductive-inductive as well as the explicit-implicit grammar teaching approaches in the Indonesian EFL context. At this point, it is useful to set bases on some terminologies that are used throughout this study.

With regard to deductive-inductive dimension of grammar teaching and learning, Seliger (1975) substantiates the former as the direct abstraction of rules that occurs at the beginning of the lesson whereas the latter as formulating abstraction through inferencing that takes place at a later stage of the lesson. In addition, Haight, Herron and Cole (2007) characterizes that the former features the emphasis on formal grammar component and its analysis before comprehension of meaning and, if there is at all, communicative practice. They typify that the latter, on the contrary, prioritizes comprehension of meaning and communicative language practice over grammar focus at the level of sentence. Inasmuch as the inductive approach allots more time comprehension of meaning and communicative practice, abstraction of grammar rules through inferencing tends to be more holistic than that of the deductive approach.

As for the explicit-implicit dimension of grammar teaching and learning, Scott (1990) argues that an explicit approach is a 'deliberate study of grammar rule … in order to organize linguistic elements efficiently and accurately' (p. 779) whereas an implicit approach 'suggests that students should be exposed to grammatical structures in a meaningful and comprehensible context in order that they may acquire, as naturally as possible, the grammar of the target language' (p. 779). Furthermore, Corzo (2013) typifies in the explicit approach that the use of metalinguistic terminologies is prerequisite and that controlled practice using the target structure is present at certain phase during the lesson in the explicit approach. She additionally maintains that in the implicit approach, on the contrary, the use of metalanguage is avoided and learners are encouraged to deploy free use of language form.

Language Complexity Gap Determinant

Determining the inclination of deductive-inductive and explicit-implicit dimensions in the case of Indonesian EFL context takes into account the complexity gap between the English and Indonesian languages. Either deductive or inductive approach is applicable depending on the learner proficiency, yet explicit grammar teaching is integral in the case of Indonesian EFL learning. The explicit grammar teaching is vital due to a number of English linguistic features that lack of direct correspondences in the Indonesian language system. Twaddell (1962) identifies this as 'conflicts between the learner's native language and that of the foreign language' (p. 19). He contends that the conflicts are sourced from the differences in grammar category and grammar machinery of the languages.

Table 1 exemplifies several gaps that exist between the English and Indonesian languages. The lack of corresponding lexico-grammatical items and the dissimilar syntax of sentence formation pose potential negative transfer from L1 to L2. This is due to that the L1 does not provide a readily applicable language template to that of

L2. Relying predominantly on how L1 works in order to infer the way L2 works, learners are prone to overgeneralizing grammar rules from their implicit language processing (Lightbown & Spada, 1993). Implicit abstraction of grammar rules through the absence of these correspondences at some points becomes exhaustive and less analytical. Even worse, learners can arrive at the inaccurate formulation of language regularities and subsequently internalize these erroneous conceptualization giving direct impacts on their overall fluency in the language production. No matter how effortful learners attempt to infer the grammar of the foreign language, explicit language instruction is essential to fill this gap. In other words, the absence of corresponding linguistic components as well as their functions in sentence formation call for an explicit grammar teaching approach in which learner's attention to specific language regularities is deliberately drawn (Batstone & Ellis, 2009).

English			Indonesian			
Grammatical Category						
Auxiliary Verbs						
1	Be	is, am, are, was, were, been	Lack of correspondence			
2	Modals	can, could, may, might, etc.				
3	do, does, did					
4	have, has, had					
Verb Forms						
		Regular	Irregular		Regular	
1	Base/Inf.	jump	eat	1	Base	*lompat*	*makan*
2	Present	jump/jumps	eat/eats				
3	Past	jumped	ate				
4	Past Part.	jumped	eaten				
5	Pres. Part.	jumping	eating				
Plural Markers						
1	-s	pen*s*, lamp*s*, book*s*, etc.	Lack of correspondence			
2	-es	glass*es*, box*es*, watch*es*, etc.				
Grammatical Machinery						
Subject and Verb Agreement						
1	I eat.		1	*Aku makan.*		
2	They eat.		2	*Mereka makan.*		
3	He eats.		3	*Dia makan.*		
Tenses Changes						
1	Present simple tense		1	Present form		
	She eats.			*Dia makan.*		
2	Present continuous tense		2	Present (on going) form		
	She is eating.			*Dia sedang makan*		
3	Past simple tense		3	Past form		
	She ate (yesterday).			*Dia makan (kemarin).*		

Passive Voice				
1	She write the book.	1	*Dia **me**nulis buku itu.*	
	The book was written by her.		*Buku itu **di**tulis oleh dia.*	
2	I bought the flowers.	2	*Aku **me**mbeli bunga itu.*	
	The flowers were bought by me.		*Bunga itu **di**beli oleh aku.*	
3	He has watered the tree.	3	*Dia telah **me**nyiram pohon itu.*	
	The tree has been watered by him.		*Pohon itu telah **di**siram oleh dia.*	

Table 1. Contrastive analysis of grammatical category and grammatical machinery between English and Indonesian

One example from Table 1 is the passive voice sentence formation. The basic formulaic pattern of English passive voice requires the presence of copula *be* and the past participle verb form. This pattern is also subject to the changes of English tenses. As seen in the example of English passive voice sentence 2, in which the simple past tense is used, the corresponding copula *be* is *was*, in agreement with subject *he*, followed by the irregular past participle form of *take* which is *taken*. In the case of example sentence 3, in which the present perfect simple is used, the corresponding copula *be* changes into *been* and this is mandatory preceded by perfect tenses auxiliary *has* which is in agreement with the subject of the passive sentence *the car* instead of *they*. Here L2 learners often mistakenly use the perfect tenses auxiliary *have* which is in agreement with *they* instead of *the car*. However, as *they* is replaced by *the car* as the subject in the passive sentence, the correct present perfect auxiliary verb is *has* instead of *have*.

In comparison to the Indonesian passive voice formation, the Indonesian syntax does not necessitate the subject and verb agreement in its sentence structure as there is only one verb form which is the base form. Additionally, Indonesian syntax does not correspond to English grammatical category of auxiliary verbs. Even though the position of subject and object is swapped, there is no need to bother putting the correct auxiliary verb in accordance with the tenses used in the passive sentence formation. Accordingly, the formation of passive voice only requires an alteration of prefix *me-* into prefix *di-* on the base verb, regardless of the tenses changes, and is optionally followed by the word *oleh* indicating the doer of the action after the action verb.

From the outlined example above, it is observable that language complexity gap between English and Indonesian is considerably significant. The absence of certain linguistic features and formulaic patterns in Indonesian language insists on the presence of explicit and conscious English grammar learning. Fischer (1979) plainly puts it that:

> If the foreign language rule is of equal or greater complexity than the native language rule, it should be presented in a setting in which the student is prevented from using his knowledge of the native language, since the native language rule will be of little help, and, in fact, can be an obstacle in his attempt to understand the foreign language rule. (p. 100)

Moreover, attending formal language features through the explicit grammar teaching approach ensures that learners comprehend the foundation of language declarative knowledge which is utilized in the productive language skills at the later stage of the lesson. Such emphasis prevents the erroneous concept formation of the declarative language knowledge which results in the fossilization of inaccurate language use (Lightbown & Spada, 2008).

However, as the learners gradually accumulate the structure of a language as a whole (Wilkins, 1976, as cited in East, 2012) and develop a set of proficient language skills and fluent communicative competences, grammar teaching moves away from deductive to inductive manner. Relying on their previously acquired declarative knowledge through deductive and explicit manner, learners with higher language proficiencies are able to inductively make distinctions on language irregularities conflicting with former learning. Provided with the substantial foundation of syntactical structure constructing the formation of a language through explicit approach, learners acquire the grammatical feature of the language in a more manageable chunks. Moreover, they are prevented from overgeneralizing certain rules as they are aware of particular irregularities where the rules do not apply.

Language Needs Determinant

In the referred context, language learning is identified to serve several purposes. To name a few, it can be directed towards attaining performance indicators emphasizing language fluency development such as conversational programs, it can accommodate the development of language fluency as well as language accuracy through general English classes, and it can also be strictly intended for preparing learners to attain certain thresholds of standardized sit-in assessments such as TOEFL, IELTS, and other independent institutional testing. This is not to mention several other language learning orientations requiring English for specific purpose (ESP) course designs. In Littlewood's (2004, 2007) conceptualization, as illustrated in Figure 3, these learning orientations fall somewhere along the continuum of focus on form and focus on meaning. The apparent identification that language learning serves various purposes calls for different approaches in the teaching of grammar.

Focus on forms		← →		Focus on meaning
Non-communicative learning	Pre-communicative language practice	Communicative language practice	Structured communication	Authentic communication
Focusing on the structures of language, how they are formed and what they mean, e.g. substitution exercises, 'discovery' and awareness-raising activities	Practising language with some attention to meaning but not communicating new messages to others, e.g. 'question-and-answer' practice	Practising pre-taught language in a context where it communicates new information, e.g. information-gap activities or 'personalized' questions	Using language to communicate in situations which elicit pre-learnt language, but with some unpredictability, e.g. structured role-play and simple problem-solving	Using language to communicate in situations where the meanings are unpredictable, e.g. creative role-play, more complex problem-solving and discussion

Figure 3. The continuum of focus on forms and focus on meaning

Adapted from "The task-based approach: Some questions and suggestions" by W. Littlewood, 2004, *ELT Journal*, p. 322. Copyright 2004.

For example, we can draw attention to general EFL classes requiring the learners to attain performance indicators on both language fluency and language accuracy. In reference to Littlewood's continuum, the nature of the language learning needs fall between the pre-communicative language practice and the structured communication. Inasmuch as the focus is to balance the development of language fluency and accuracy, the teaching of grammar is more appropriately approached through explicit induction. In classroom practice, this can be operationalized from the classic presentation-practice-production (PPP) procedure (see Klapper, 2003; Harmer 2015). The inductive approach is intended to develop learner's language fluency in that they are given opportunities to use the target structure in a semi-controlled setting. As for promoting learner's language accuracy development, the intervention of explicit approach is regarded essential to raise consciousness on particular target structures. Learner's meta-inventory development resourcing from the explicit instruction is then proceduralized in the language production phase where teacher intervention is at minimal level and the use of the target structure is not strictly restricted.

This is in accordance with a study conducted by Montgomery and Eisenstein (1985) which investigated the impacts of formal instruction and communicative exposure to learners' language performance. The study involved twenty-eight participants who were divided into two groups. The first one, the control group, was a traditional teacher-fronted English as a second language (ESL) class. Its emphasis was developing grammatical accuracy through the implementation of grammar-based syllabus. The second one, the experimental group, was treated under the combination of the traditional ESL class and the oral communicative course (OCC). In addition to having exposed to the grammar-based procedure in the ESL class, the OCC participants were also exposed to the task-based learning framework characterized by the pre-task, on-task, and post-task phases. At the end of the treatments, pretest and posttest covering five separate items which were accent, grammar, vocabulary, fluency, and comprehension were used as instruments of analysis.

The results indicated that both the OCC group and the traditional ESL class performed relatively equal in terms of comprehension, vocabulary and fluency development. Interestingly, the traditional ESL class was outperformed by the OCC group in grammatical accuracy development. It signifies that the explicit grammar teaching approach in the ESL class serves as input for the meta-inventory from which the learners are able to retrieve and self-monitor their performance during OCC sessions. Furthermore, the inductive nature of the OCC sessions functions as a validation of the previously learned target structures in the form of language production. This strengthens the retention of concepts for later retrieval and leads to automatization (DeKeyser, 1997). In other words, the explicit inductive approach is potential to foster EFL class of which language learning needs necessitate the development of not only language fluency but also language accuracy.

Contextualized Grammar Game

Grammar point presentation through contextualized grammar game serves a range of functions. First, the fact that there is a number of lacks of correspondence between the native and the foreign languages in a way overwhelms the learners' state of anxiety. As language anxiety significantly prevents learners from acquiring a new language

(Boarcas, 2014), the deployment of grammar games strategy is intended to lower the learners' anxiety level impacting on learners' perception about learning the new language. Dornyei and Csizer (2005, as cited in Thekes, 2011) further emphasize the importance of creating a relaxed and entertaining atmosphere in order to maintain learners' learning motivation nurturing the sustainability of learning over a period of time.

Secondly, the deployment of contextualized grammar games strategy is intended to anticipate the predisposition that explicit grammar teaching is predominantly characterized by greater inclination towards teacher-centredness. In fact, classroom games are designed to foster students' engagement in learning and to break the teacher-learner and learner-learner gaps where learners are given the opportunities to be cognitively, socially, and at times physically, involved in the activities. It means that they are able to collaborate and contribute more to their own learning. Furthermore, Marsh, Clarke and Pittaway (2015) identify several advantages in utilizing games as one teaching strategy; they promote more students' engagement; they encourage students' self-development; they enable the students to communicate more confidently; and they allow concepts to be more easily understood. In other words, taking some considerations on the frequency, variety and communicative purposes, contextualized grammar teaching promotes effective language learning.

Context	Inventions	
Language points	Passive voice: Simple past tense	
Activity	Paired utterances race	
Language prerequisites	• Past participle verb forms (regular and irregular) • Passive voice formation (question and answer) particularly using the simple past tense	
Prior knowledge	General knowledge about major and popular inventions nationally and internationally	
Aims	• Raise awareness on:	
	a. Form	S + be + Verb III (+ doer)
	b. Meaning	Reporting historical events
	c. Use	Inventions
	• Exemplify the real-world application of the target language use	
Target learners	Adults	
Proficiency level	Lower intermediate (CEFR A2 or B1)	

Table 2. Example of contextualized grammar game

Having presented the target language explicitly in the initial stage of the lesson, this contextualized grammar game (refer details to Table 2) gives opportunities for the students to mobilize their declarative knowledge of the target language into procedural knowledge. In general, the nature of this activity manifests Paulston's (1971) structural pattern drill. On one hand, the nature of the game resemblances Paulston's mechanical drill in which the degree of control of students' responses is considerably convergent and, therefore, it makes the responses using the target language containing particular syntactical pattern and lexical items predictable. On the other hand, this game also exhibits characteristics of meaningful drill in which language is not presented in isolation of context. Instead, it contextualizes the

language into real-world setting which promotes a higher degree of retention by associating the presented target language into its context. Directing the students to attend the two orientations, students are enabled to notice, internalize and automate the presented target language and proceed to a more communicative language practice utilizing the target language as one chunk of the broader language use.

Teacher's questions	Students' responses
Dou you usually watch quiz programmes on TV?'	The expected answer is: *Yes.*
Can you name some of the programmes?	• *Family Feud* • *Who Wants to be a Millionaire* and so forth
What sort of questions are being asked?	*General knowledge*

Table 3. Examples of guided questions leading students to the intended context

As for the procedure, this activity is conducted in groups and, therefore, is competitive in nature. Before assigning the students into groups, the teacher gives guided questions leading to intended context about invention. Some examples of the guided questions are presented in Table 3. The teacher then refines using further leading questions to arrive at the intended context which is a quiz about world inventions. After the students understand what they are about to do, the teacher assigns them into groups for the competition. In order to ensure the competition flows as expected, the teacher gives an example from the slides (see Appendix 1). For example, from the slide in Figure 4 students are expected to generate a pair of utterances consisting of a question and its corresponding answer. The expected question is '*Who was the Romeo and Juliet written by?*' and the expected answer is '*It was written by William Shakespeare.*' The students are expected to produce sentences that are syntactically correct and in correspondence to general knowledge truth.

Figure 4. Example of slide for the past simple passive invention game

Grammar Contrast Practice

As learners accumulate manageable chunks of language through the explicit deductive approach, the learners are prepared to engage meaningful analysis of the language through a more inductive approach (Celce-Murcia, 1985). Explicit explanations are present only when necessary, especially when erroneous structural formation occurs, as the learners have noticed and developed the sense of awareness on formal language features. Activating their formal language awareness enables them to analyze the contrast of similar grammar points serving different communicative functions. Therefore, the learners are expected to perceive the language holistically, in which they focus predominantly on meaning (Huang, 2010), and analytically, in which they are enabled to break down the formal language rule rooting from the previously acquired explicit learning (Fischer, 1979), at the same time.

In this activity (refer details to Table 4), it is mandatory that the language prerequisites are met. The language prerequisites not only raise the awareness on contrasted forms but also attend the communicative meanings of the formal language forms. The future simple using '*will*' in this case serves as the sudden decisions and unsure predictions communicative functions whereas the present continuous '*be going to*' serves as the future intentions and sure predictions communicative functions. The blend of mechanical and meaningful analytical drilling shifts the students' focus merely on attending the formal language features being practiced to the contextual meaning of the sentences (Wolfe, 1967, as cited in Strain, 1968). Consequently, both language accuracy and fluency which become the fundamental goal of language learning are accommodated.

Language points	Future simple and present continuous tenses		
Activity	Sentence completion		
Language prerequisites	Previous learning on the meaning of simple future and present continuous tenses covering: a. Sudden decisions b. Future intentions c. Unsure predictions d. Sure predictions		
Aims	• Raise awareness on:		
	a. Forms	Future simple → will	
		Present continuous → be + going to	
	b. Meanings	Sudden decisions	
		Future intentions	
		Unsure predictions	
		Sure predictions	
	• Exemplify the real-world application of the target language use		
Target learners	Adults		
Proficiency level	Intermediate (CEFR B1)		

Table 4 Example of grammar contrast practice

As for the procedure, the teacher begins with a review on the language prerequisites. This is intended to check students' conceptualization on the target languages by assigning them to inductively infer and re-articulate the formal language rules. It is essential that explicit explanations, either from the teacher or from peer elicitation, are present when there are misconceptualizations on certain features. After activating students' prior knowledge, the teacher proceeds to drawing the students' attention to the two contrasted language forms serving four communicative meanings represented in Table 4. The teacher then elicit some examples representing one or two of the practiced communicative functions.

One example is as the following:

> 7. There is a blind man walking towards a hole. He _____.

From the item presented above, the students analyze which of the two language forms is more appropriate to continue the sentence in the given context. After deciding which language form is more appropriate, the students are expected to be aware of the communicative function it elicits. The students attempt to infer that the sentence following the presented item is '*He is going to fall into the hole.*' Furthermore, the students are expected to be able to provide a brief explanation on the use of the present continuous form serving as a sure prediction communicative function.

Conclusion

In summary, this study has attempted to enlighten the conceptualization of grammar teaching in the EFL discipline especially in the light of different teaching methodologies. It is revealed that the pedagogical tenets of these methodologies position grammar at certain degrees of importance in its practical realization. In a continuum, the anti-grammarian end, for example the natural approach, maintains that grammar focus is less, even the least, of significance in language acquisition. It views that consciously attending grammar is not an integral part in acquiring a target language. On the other end, the pro-grammarian maintains that grammar constitutes one of the language fundamentals. Hence, it defends that deliberate attention drawn to the formal language features significantly contributes to the acquisition of a fluent and accurate target language. This study, however, argues that the practical realization of grammar teaching falls somewhere in between the continuum where there are a number of determinants coming into play.

Two, out of many other, determinants affecting the deductive-inductive and explicit-implicit realization of grammar teaching for adult EFL learners in Indonesia are substantiated in this study. The first is the language complexity gap between L1 and L2. In Indonesian EFL context, the lack of direct correspondences in the grammar category and grammar machinery between Indonesian and English necessitates the presence of explicit grammar teaching approach. As for the deductive-inductive dimension, it essentially depends on the learner proficiency level. The second determinant is the language learning needs. Inasmuch as EFL learning serves a range of different purposes in Indonesian non-formal educational context, these purposes call for different approaches in order to meet their language output expectations.

This study has implication in the EFL teaching and learning practice. Examining two determinants affecting the implementation of deductive-inductive and explicit-implicit grammar teaching approach in the Indonesian EFL context, this study can be a useful reference especially for teachers, practitioners, and researchers in the EFL discipline. It contributes to enlightening how grammar is conceptualized and positioned in teaching practice across contexts. Language teachers, who become intermediaries between theories and practice, are expected to observe, analyze, implement, and evaluate certain practices of grammar teaching approaches from which they can accelerate the acquisition of a foreign language. Being aware of the extensive context-bound particularities, such as the presented determinants, interplaying in the teaching and learning process, teachers are enabled to make well-informed decisions with regard to the sole purpose of learning a language.

Further literature research in the light of determinant-based grammar teaching can be directed towards exploring whether other determinants such as learning culture, learner educational background, language skills, and language register play a role in grammar teaching approach decision making. The scope can also be broadened to cater the broad spectrum of intensive-extensive, intentional-incidental, integrated-separated, and massed-distributed grammar teaching dimensions. In addition, inasmuch as this work grounds basis on secondary data analysis, further research can also be navigated towards conducting empirical investigations. The empirical research is intended to validate whether the outlined determinants affect the learner's language comprehension and production and to what extent they affect the acquisition of a foreign language.

Acknowledgements

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Appendices

Appendix 1 Contextualized grammar game [PowerPoint slides]
Appendix 2 Contextualized grammar game [Key answers]
Appendix 3 Grammar contrast practice [Handout]

Appendix 1 Contextualized grammar game [PowerPoint slides]
All the images in the PowerPoint slides were sourced from google image search
database.

Slide 1
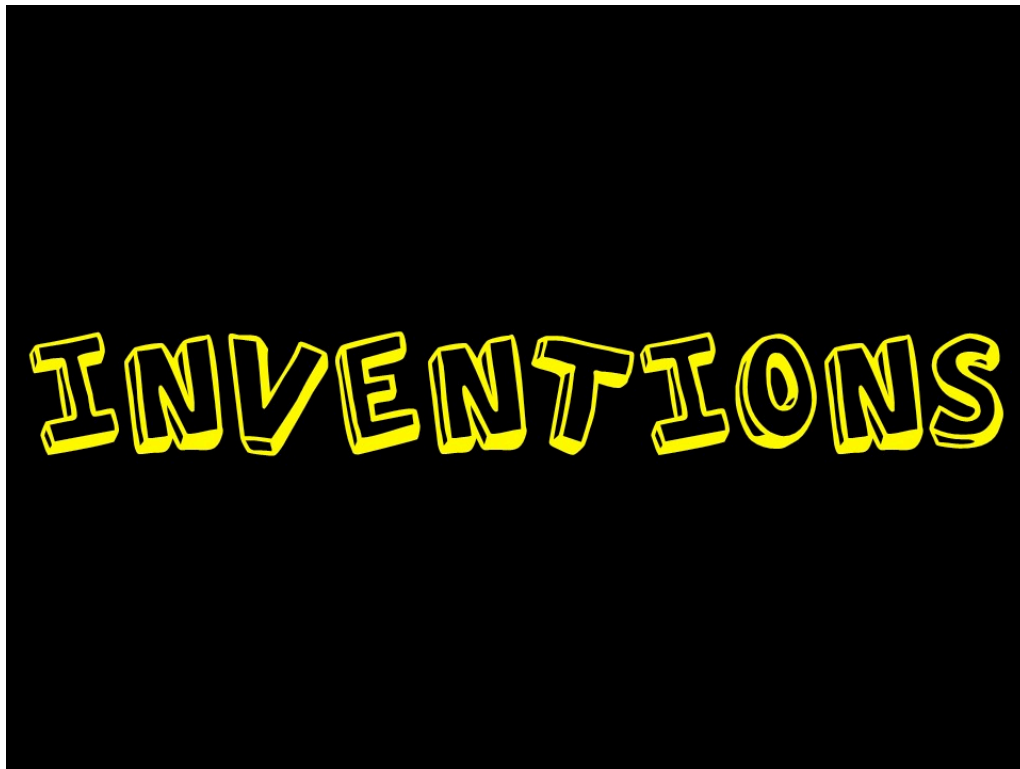
Slide 2

Slide 3

Slide 4

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Slide 6

Slide 7
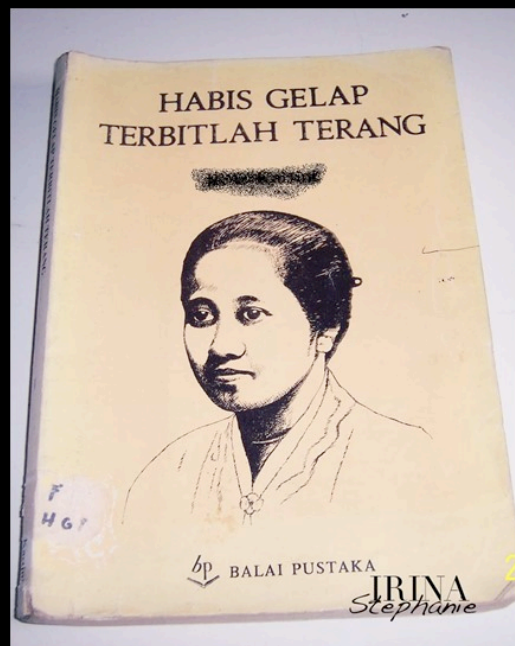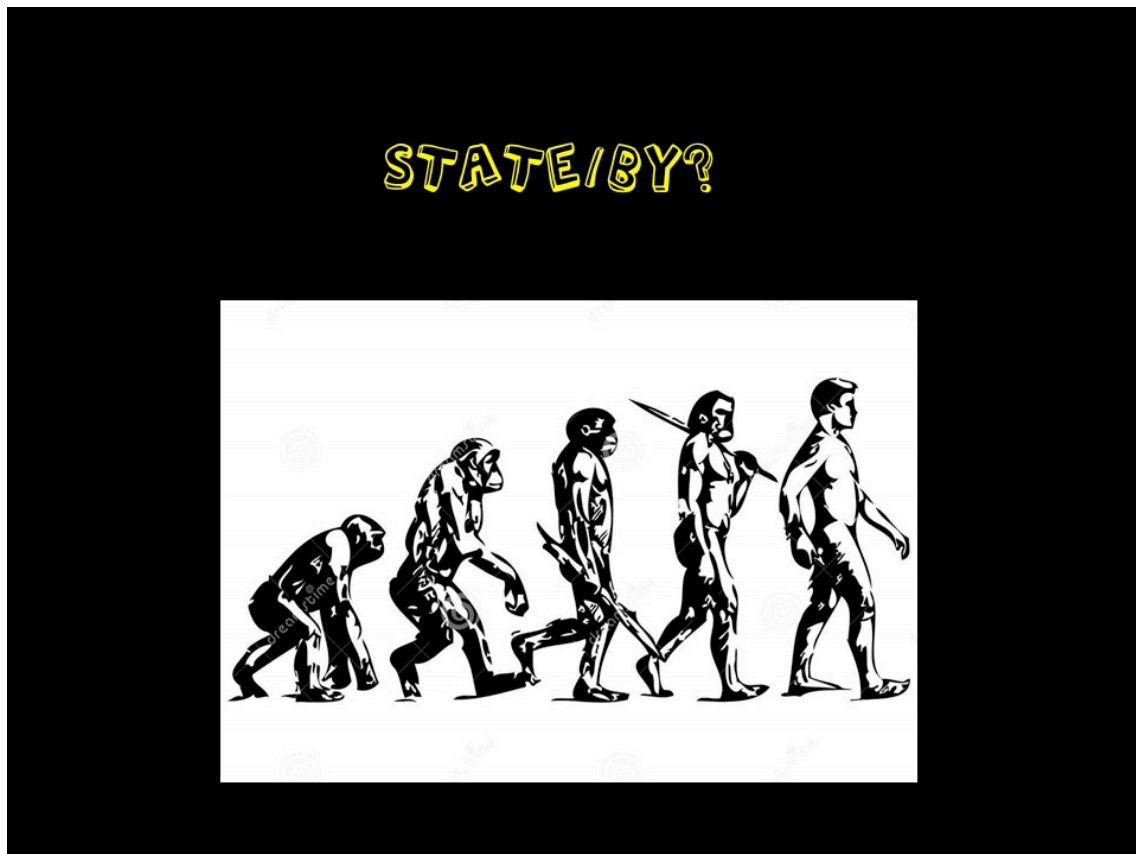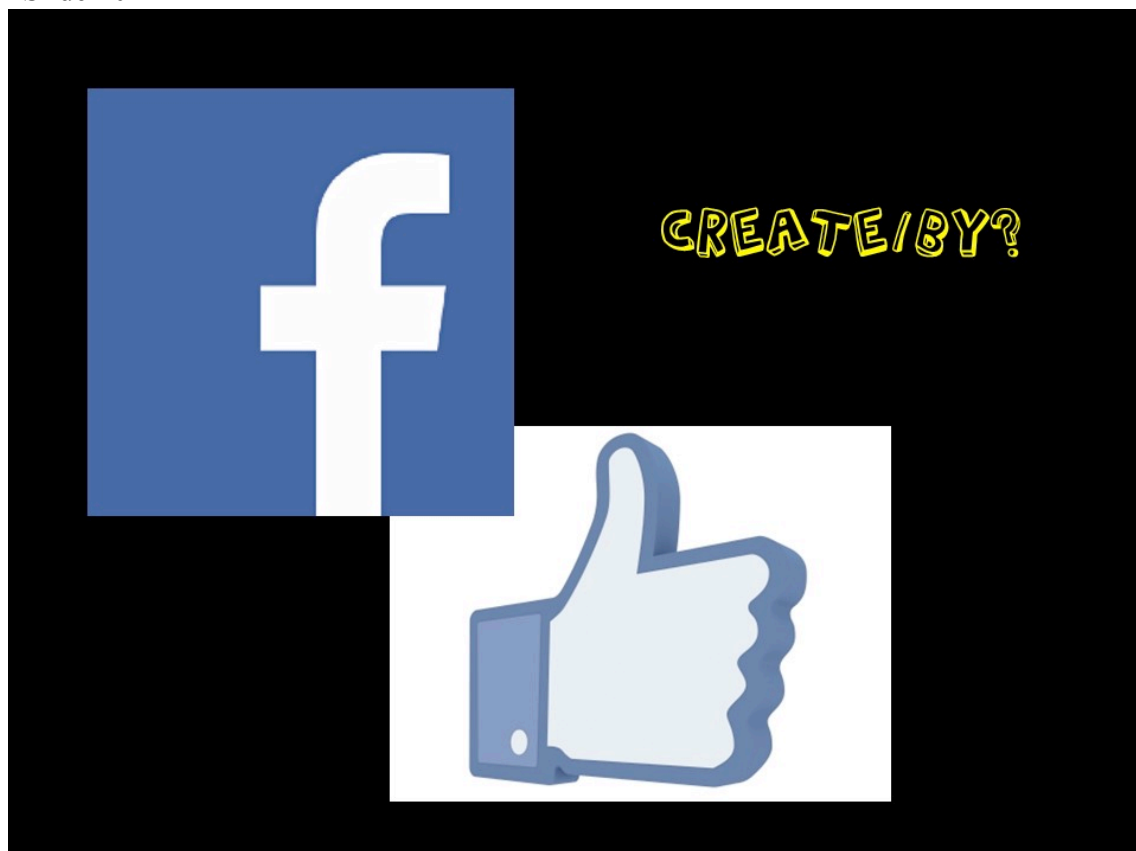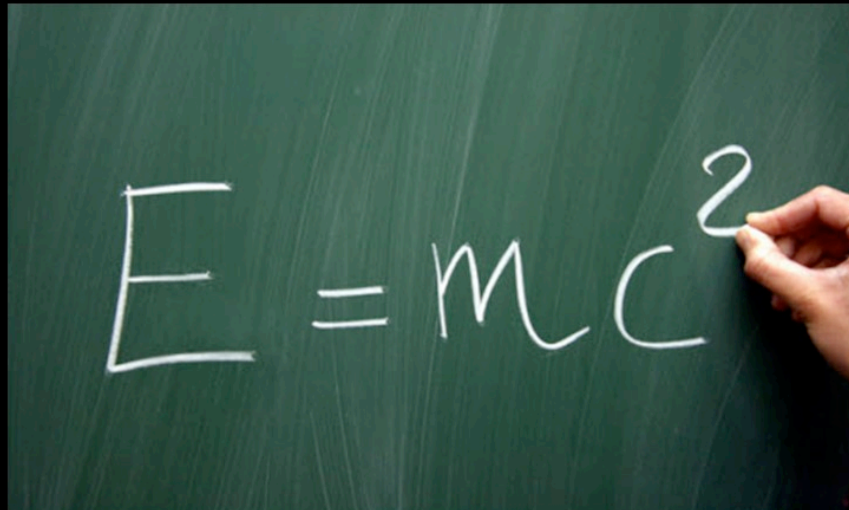
Slide 8

Slide 9

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Slide 14

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Slide 16

Appendix 2 Contextualized grammar game [Key answers]

Slide 1 Title   : INVENTION
Slide 2 Question   : *Who was the **Romeo and Juliet** written by?*
         Answer   : *It was written by William Shakespeare.*
Slide 3 Question   : *Who was the **telephone** invented by?*
         Answer   : *It was invented by Alexander Graham Bell.*
Slide 4 Question   : *Who was the **light bulb** invented by?*
         Answer   : *It was invented by Thomas Alfa Edison.*
Slide 5 Question   : *Who was the **Apple Inc**. established by?*
         Answer   : *It was established by Steve Jobs.*
Slide 6 Question   : *Who was the **gravity theory** formulated by?*
         Answer   : *It was formulated by Isaac Newton.*
Slide 7 Question   : *Who was the '**Habis Gelap Terbitlah Terang'** written by?*
         Answer   : *It was written by Raden Ajeng Kartini.*
Slide 8 Question   : *Who was the **Indonesia Raya anthem** composed by?*
         Answer   : *It was composed by Wage Rudolf Supratman.*
Slide 9 Question   : *Who was the **evolution theory** stated by?*
         Answer   : *It was stated by Charles Darwin.*
Slide 10 Question   : *Who was the **Facebook** created by?*
         Answer   : *It was created by Mark Zuckerberg.*
Slide 11 Question   : *Who was the **relativity theory** formulated by?*
         Answer   : *It was formulated by Albert Einstein.*
Slide 12 Question   : *Who were the **Mickey and Minnie Mouse characters** created by?*
         Answer   : *They were created by Walt Disney.*
Slide 13 Question   : *Who was the **Windows software** created by?*
         Answer   : *It was created by Bill Gates.*
Slide 14 Question   : *Who was the **telescope** designed by?*
         Answer   : *It was designed by Galileo Galilei.*
Slide 15 Question   : *Who were the **jeans** engineered by?*
         Answer   : *They were engineered by Levi Strauss.*
Slide 16 End   : GAME OVER

Appendix 3 Grammar contrast practice [Handout]

REVIEW SIMPLE FUTURE AND PRESENT CONTINUOUS

A SUDDEN DECISION	B FUTURE INTENTION
C UNSURE PREDICTION	D SURE PREDICTION

1. I'm too tired to walk home. I think I _____ a taxi.
2. A: I've got a terrible headache.
   B: Don't worry. I _____ an aspirin for you.
3. It's too late to give Tom a ring. I think _____ him tomorrow.
4. A: It's a bit hot in this room.
   B: Is it? _____ turn on the AC then.
5. A: Did you write that letter to Jack?
   B: Oh, I forgot. Thanks for reminding me. I _____ it this evening.
6. A: Why are you filling that bucket with water?
   B: _____ wash the car.
7. The man is blind. There is a hole in front of him. He _____.
8. A: Have you phoned Tony?
   B: Not yet. I _____ after lunch.
9. A: Tom has just bought a new painting.
   B: Really? Where _____ hang it?
10. Ann is driving. There's only a little petrol in the tank. The nearest gas station is long way away. I think she _____.
11. Your palm says that you _____ marry young.
12. I think the house is on fire. I _____ the fire brigade.
13. A: Do you want to go to the park?
    B: I'm sorry I can't. I _____ my grandparents.
14. Look at those black clouds! It _____.
15. A: Have you bought a present for Sally?
    B: Yes, I have. I _____ her a perfume.
16. I feel a bit hungry. I think _____ something to eat.
17. I think Brazilian _____ win the match tomorrow.
18. A: Why do you want to sell your flat?
    B: I _____ move to Madrid
19. Have you heard the news? Jane _____ a baby!
20. A: Have you finished your report?
    B: No, I _____ stay late and finish it.
21. A: My bicycle has got a flat tyre. Can you fix it?
    B: Okay, but can't do it today. I _____ tomorrow.
22. A: Why are you turning on the TV?
    B: I _____ watch the news.
23. Why don't you change your hairstyle? You _____ look much better.
24. A: This box is very heavy.
    B: I _____ carry it for you.
25. Stop worrying about the exam. You _____ pass it easily.

Can You Do Hip-Hop in Yogyakarta? Global-Local Nexus in Javanese Hip-Hop

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Abstract
The emergence of the internet and the development of transportation technology have enabled massive products, people, and ideas to travel beyond borders and nations. They also foster and intensify the interaction between global and local culture. This paper attempts to examine of the global-local nexus in globalisation by conducting a case study. It focuses on the growth of hip-hop as a form of a global culture in the Javanese society. The discussion includes the development of hip-hop as a global culture, the identification of factors that affect the acceptance of hip-hop in Javanese society, and the Javanese hip-hop as a form of hybridization.

It concludes that the society responds to the global product based on its own interpretation. It also highlights that the process of global-local nexus depends on several factors. The dissemination of hip-hop culture in Indonesia gains advantages from the policy of Indonesian government to be more open to the international discourse as well as to grant more freedom to the media industry in the 1990s. Furthermore, the development of hip-hop is supported by the characteristics of Javanese society which deeply respects mutual understanding and collaboration across cultures. The similarity of hip-hop elements to the forms of Javanese traditional music and arts such as *Wayang* (puppet show) and *Parikan* (traditional poems) also plays pivotal roles in creating a hybrid product as a result of the interaction between global and local culture; that is a Javanese hip-hop.

Keywords: Globalisation, Global, Local, Culture, Hybridisation

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Introduction

Globalisation has become a popular term in everyday life of the society. It exists in the class discussion at school, presents in the headline of daily newspapers, and even becomes a trending topic in family discussion during dinner time. However, how do we define the notion of globalisation? Perhaps, because of its complexity and multi-dimensions, there are many ways to describe globalisation and its effects. Giddens (1990, as cited in Tomlinson, 1997) considers globalisation as 'the very tissue of spatial experience alters, conjoining proximity and distance in which way have few parallel in prior age'. In other words, globalisation brings world-wide society closer in the way it never happened in the past. The advancement of technology by the late of the twentieth century has accelerated the globalisation process throughout the world. The emerge of the internet and the development of transportation technology, for example, has enabled massive products, people, and ideas to travel beyond borders and nations. Today it is easy to find tropical fruits in local groceries in Melbourne, to get books written by foreign authors, or to visit ten countries located in three different continents in less than a week. In other words, the world nowadays is shrinking, and McLuhan's notion regarding a global village is evoking (Robinson, 1997).

Globalisation has affected many dimensions of human life, from economy to politics. Globalisation also possesses 'cultural effects' (Jurriëns, 2004, p. 5) which are related to the way of global and local culture interacts. The interaction between the local and the global, widely known as a global-local nexus is continually become a growing issue revolves around globalisation. There are at least three scenarios regarding the global-local interaction in the globalisation process: homogenisation, heterogeneity, and hybridisation (Robinson, 2007). Previously, there was prevailing notion that globalisation leads to 'cultural imperialism'. Friedman (1994, as cited in Tomlinson, 1997) suggests that cultural imperialism can be signified by the rise of domination of central cultures, dissemination of certain values, products, and way of living. This practice creates homogenisation of the culture of the dominant, in this case, the culture of the western (The United States and Europe). However, in some other part of the world, society reacts to the phenomena of cultural imperialism by building total rejection of receiving other culture particularly from the dominant one. This idea created 'heterogeneity' which can be stated in several different forms. It may reflect in the government's policy to limit or ban cultural products or in the form of anarchy movement such as Jihad, which Barber (1995, p. 9) believes may begin from the 'simple search of local identity' against the colonising cultures'. The last scenario called Hybridisation means that there is a combination of global and local producing the new culture in certain society. this new culture is constantly developing and is depending on the interpretation of the society (Robinson, 2007).

This essay examines the existence of global-local nexus in the frame of globalisation by conducting a case study. It specifically examines the growth of Hip-hop in Javanese Culture which is practiced by local musical group called Jogja Hip-Hop Foundation. This essay is developed in three sections. The first section discussed hip hop as a global culture. The second section explores the history of Hip-Hop in Indonesia especially Yogyakarta and identifies factors that support the acceptance of Hip Hop in this city. The last part attempt to highlight the form of hybridisation between hip-hop and the Yogyakarta's local culture: A Javanese Hip-Hop.

Hip-hop as a global culture

Hip-hop music was born in Bronx, New York City which still well-known as a home and centre for this culture until nowadays. Hip-hop became very popular after D. J Kool Herc introduced it in 1973 during after school party in Sedgwick Ave (Gonzales, 2008). Since then, this innovative music rapidly spread in poor neighbourhoods of New York. Price III (2006, p. 21) identifies four key features of hip-hop as a global culture: The DJ, Graffiti, Bboys and Bgirls, and The MC. As this kind of music firstly emerged in the Afro-American society with circumstances of discrimination and marginality (Mohamad, 2014), most of the hip-hop lyrics expressed social protests and disappointments by using violent, rebel, and rude language (Smitherman, 1997). The use of rude words become the main reason why some of the hip-hop artists are prohibited to conduct performances or have their performances censored. Despite its controversy, hip-hop continually grows as one of the popular music all over the word. The function of hip-hop developed diversely in several parts of the world (Varela, 2014). In Germany, Hip-hop is the main medium for youth minorities to articulate their critics regarding racism and national identities (Bennett, 1999). In other parts of society such as Cambodia, local singers use hip-hop to commemorate the tragic history of genocide in the country. Meanwhile, a group of youngsters in Singapore utilises it to maintain local identity of a nation (Mattar, 2003, as cited in Varela, 2014).

The development of Hip-Hop in Indonesia and Yogyakarta

The relations between global and local, commonly known as a global-local nexus is a dynamic and multidimensional. Appadurai (1990, as cited in Robinson, 2007) proposes 5 (five) factors which affect the exchange of ideas in globalisation: 'mediascapes, ethnoscapes, technoscapes, financescapes, and ideoscapes'. Furthermore, Tomlinson (1997) suggested that the dialectics between global and local may be affected by several factors such as economic power and domination, cultural autonomy, and social regulation. This section aims to further elaborate dominant factors which influence the development of Hip-hop culture in Indonesia, particularly in Yogyakarta.

Socio-Political Factors

The transformation in the political environment is one of the pivotal factors that provides access for western culture to interact with local culture in Indonesia and Yogyakarta. At the initial era of the independence, Indonesia posed a distance from Western countries. This condition occurred due to the heavy tension between Indonesia and the United States. In the 1950s, the first president of Indonesia, Soekarno, eliminated the flow of western products to Indonesia especially in the form of cultural products. He banned the circulation of Western popular music such as Rolling Stones and The Beatles. In contrast, he encouraged the development of local culture by establishing Lembaga Kesenian Rakyat (Community Art Centre, well known as LEKRA) (Ida, 2008). The major media consumed by society such as radio and television were monopolized by the government and only contained national or local contents. Their contents were constructed mainly to promote national identity in order to build and to develop national 'integrity and unity' (Ida, 2008, p. 96). The second president, Suharto still conducted several attempts 'to control public discourse

and cultural production' (Bidden, 2005, p. 8). However, this regime imposed softer regulations and policy regarding the nation's relationship with western countries through media. When private radio existed for the first time in Indonesia, there was no regulation to control them (Enviradene, 2012). Although national television channel, TVRI, was still dominated with local and national contents, when private television channel was introduced in 1989, there were no strict regulation to limit the number of the foreign program for these private institutions. During 1990 and 1991, 90% broadcasted programs of two big private television stations in Indonesia namely Rajeswari Citra Televise (RCTI) and Surya Citra Televisi (SCTV) were imported program (Ida, 2008).

The rapid growth of television and radio made them became 'agents of westernisation' for Indonesian society (Enviradene, 2012, p. 75). In 1995, MTV was introduced to some of the audience in big cities in Indonesia trough the cooperation with national private television station Ant eve which allocate a quarter half of its 24 hours broadcast time to air MTV programs (Baluch, 2007). At the same time, the embryo of hip-hop culture in Indonesia was formed with the appearance of Iwi K, who is considered as the first Indonesian rapper. His first album in 1990's became new phenomenon in national music industry and created positive trends for hip hop culture in Indonesia (Bidden, 2005). In 2002, MTV collaborated with Global TV to provide twenty-four hours broadcast for seven big cities in Indonesia (Jakarta, Surabaya, Semarang, Bandung, Yogyakarta, Medan, and North Sumatra (Baluch, 2007). In this era, the western rappers such as Eminem, Missy Eliot, and P. Daddy were very popular among Indonesian youths in the major regions such as Yogyakarta.

Socio-Cultural Factor

Yogyakarta is a small city in Java Island, Indonesia. It covers an area of only 32 km square. Despite the small area, Yogyakarta plays a great and influential role for Indonesia. It has the significant contribution during Indonesian struggle for independence. It also becomes one of the special regions in Indonesia beside Aceh. The special region attribute is related to the status of Yogyakarta as a kingdom. With this attribute, the Sultan (King) of Yogyakarta will be automatically gain a position as a governor of this region. Yogyakarta is often considered as well as the heart of Java culture (Richter, 2012). It is well-known as a region which still strongly holds and appreciates local cultural values. In this city, the traditional language named *Bahasa Jawa* (Javanese language) is still being used both in everyday conversations and in the formal meeting in a local government setting. It also becomes a part of the curriculum in formal schools as a compulsory subject from elementary (6 years) until junior high school (3 years) grade. *Bahasa Jawa* has a certain degree of politeness in its usage. *Krama* is a polite form of Javanese language Javanese people use it to talk with older or respected people while *Ngoko* is a kind of language which considered less polite (Zentz, 2015). Javanese people also still proud of wearing batik (a kind of tie and dye fabric which is admitted by UNESCO as a world cultural heritage in 2010) in their daily occasions.

With all characteristic of Javanese culture in the society of Yogyakarta, it seems there is no room for hip-hop music to develop in this region. The relations between Javanese culture and hip-hop contains several paradoxes: between polite and rude, between traditional and popular. So, how it is possible for hip-hop culture made its

way to this kind of society? In the book Feeling Asian Modernities, Iwabuchi (2004, p .12) contends that the popularity of certain cultural products, in this case, Japanese TV series, 'is driven by the perception of cultural proximity'. While it looks like there is no similarity in culture, it is the fact that hip-hop and Javanese culture share some things in common. Javanese culture possesses several forms of traditional arts. One of them is *Parikan* which can be loosely translated as a traditional poem. As it contains the harmonious rhymes, Mohamad Marzuki suggests that *Parikan* has similarity with hip-hop (Acara TV Keren, 2015). Other forms of Javanese traditional arts name *Wayang* or puppet show also comparable with hip-hop. *Wayang* performance features *Dalang* who tells a story with the company of traditional instrument called Gamelan (Varela, 2014). The way the *Dalang* interacts with the music produced by gamelan is also similar to the way the rapper interacts with the music from the turntable in hip-hop music (Intel, 2011). In addition, there is a unique characteristic of Javanese society in Yogyakarta. Despite its high respect for the traditional culture, the member of society in Yogyakarta is relatively susceptible to new culture and innovation. The role of Yogyakarta as one of the second main tourist destinations in Indonesia after Bali influence this characteristic. Furthermore, Yogyakarta also becomes the education city and centre for the art festivals. As a result, it requires the members of society to interact with people from diverse cultural backgrounds. These determinant factors affect the interaction between global and local in the form of Javanese hip-hop.

What is the Javanese Hip-Hop?

What is the Javanese Hip-hop? This cultural form can be considered as a form of hybridisation as a result of a global-local nexus between Western culture represented by hip-hop and the Javanese culture. Jogja Hip Hop Foundation, which popularises this Javanese hip-hop was established in 2003. In general, Javanese hip-hop maintains some aspects from American hip-hop. It uses turntable and electronic music combined with the lyrics from the rapper. The member of this group also has an identical clothing style with loose shirts and trousers as well as the hat. Just like the original hip-hop, the lyrics from Jogja Hip Hop Foundation contain social and political critics and represent the grassroots. Meanwhile, it also highlights the characteristics of Javanese culture by using the Javanese language in the lyrics and batik shirts as a default apparel in their performance. The sounds of Gamelan are blended harmoniously with the modern musical instrument in its songs (Mohamad, 2014). Although Jogja Hip Hop Foundation mostly uses *Ngoko* in their songs' lyrics, swearing words can be considered very rare to be appeared in their songs.

The existence of Javanese hip-hop in Javanese society is the evidence that the analysis of the relation between global and local connection should not under evaluate the capacity of the consumers. Rather than a victim of globalisation, the consumer is now the part of agent of change. Mohamad (2014) stated that the birth of Javanese hip-hop is rooted from being open minded to new cultures, accepting some favourable values, and mix them with traditional Javanese culture. This notion is in line with the idea of Jenkins (1992, as cited in Bennet, 2014) related to 'textual poachers', where consumers (fans) can play significant roles which affect the production sectors.

Conclusion

Globalisation has been experienced by most countries in all over the world. However, the interaction process between global and local from one country to another is different. As Lee (1998, as cited in Ida, 2008) the audience does not adopt and respond to global products 'in a single way'. In the case of Jogja Hip Hop Foundation, the interaction between global and local culture is much affected by some factors such as government policy and the socio-cultural condition of the local. The change of media policy from Soekarno to Soeharto has given chances for media particularly television and radio to disseminate Western culture to the society. In addition, Yogyakarta and its society are relatively open to other cultures. This characteristic may is a result of the role of Yogyakarta as a tourism destination, art centre as well as city of education where interaction with 'outside' culture happens in high intensity. Furthermore, the acceptance of Hip Hop culture in Yogyakarta society and its ability to blend with the local culture cannot be separated from the fact that both of these cultures share something in common. The interaction between hip-hop and the Javanese culture then produce a distinct cultural product called Javanese Hip-hop.

As a hybrid product, Javanese Hip Hop accommodates both of the global and local cultures. Some original identities of Western hip-hop such as the use of loose clothing and the elements such as rapping and the use of turntable remains. However, there are some signs of local identity which are very dominant in this Javanese hip-hop. This case study then supports the idea that 'global do affect but cannot control the local meaning' (Ang, 1995, p. 127) as the culture developed by 'distinct way of interpreting of the process' (Robinson,1997, p. 140).

This paper mainly examines the relationship between global and local by conducting case study of Java hip-hop. However, it is worth nothing that political and cultural factors are not the only determinant of this relations. The dissemination of hip-hop through media such as radio and television, for example, would be less influential if supporting infrastructures such as transmitting stations do not exist. Furthermore, it will be beneficial to explore the relationship between global and local in the distribution of this Java hip-hop. The role of the global commercial channels such as the MTV in distributing local cultures can be regarded as one important aspect that can be covered in the future research.

Acknowledgement

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Factors Affecting Stress Among Faculty Members of Public Universities in the Philippines: A Multiple Regression Analysis

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Abstract

This study focused on particular demographic and education-related factors that contribute to the stress levels of public university faculty members in the Philippines. Participants in this study were part-time or full-time faculty members of Philippine public universities and were teaching at least a class during the First Semester of Academic Year 2016-2017. Participants were tasked to answer a survey, online or paper format, consisting of 3 instruments and other questions. Responses from 100 participants were then analyzed with multiple regression as the main statistical analysis. Results showed part-time/full-time status, age, job satisfaction and negative religious coping as significant predictors of faculty stress. Other performed analyses also revealed significant negative correlations between job satisfaction and stressors related to reward and recognition, and departmental influence. In addition, though faculty members preferred positive religious coping as a coping strategy over negative religious coping, a significant positive correlation was noted between the 2 types. Recommendations were made for future studies related to stress among public university faculty members in the Philippines.

Keywords: faculty stress, public university faculty members, positive religious coping, negative religious coping, multiple regression analysis

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Introduction

A. Faculty Stress

In the field of industrial-organizational psychology, work stress is considered as a reaction to stimuli in a job that leads to negative consequences to the people who are exposed to them (Muchinsky, 2007). Much of the research on work stress has focused on the teaching profession in a university. Gmelch, Wilke, and Lovrich (1986) defined faculty stress as the faculty member's anticipation of his/her inability to respond sufficiently to a perceived demand, accompanied by the expectancy of negative consequence/s due to the insufficient response to work demand/s. Stress is a common phenomenon for all university faculty across all disciplines (Gmelch et al., 1986). The academic functions of university faculty are comprehensive, which include teaching and mentoring students, preparing papers and presentations for both class lectures and research conferences, attending to the needs of one's college or department/institute and so on. They also have to deal with functions outside the academic setting: their family life, social life and other commitments. Given the numerous roles and responsibilities, the intense demands and the high expectations set to them, many university faculty experience significant levels of stress and have shown particular responses to stress, such as increased turnover intent, decreased job satisfaction, increased anxiety and increased depression (Reevy & Deason, 2014; Winefield & Jarrett, 2001; Blix, Cruise, Mitchell, & Blix, 1994).

B. Factors of Faculty Stress

Researches indicate several factors that affect the stress levels of university faculty members. These include work overload (Thorsen, 1996), work-life imbalance, (Slišković & Maslić Seršić, 2011; Kinman & Jones, 2008), job satisfaction (Harlow, 2008), increase in the number of students to teach (Easthope & Easthope, 2000), lack of university funding and resources, lack of recognition (Gillespie, Walsh, Winefield, Dua, & Stough, 2001) and decrease in administrative and colleague support (Slišković & Maslić Seršić, 2011). Other demographic and education-related factors such as gender (Blix et al., 1994; O'Laughlin & Bischoff, 2005; Hart & Cress, 2009; Greene et al. 2008; Gappa 1987), academic ranks (Kinman, 2001; Arnold, Trice, Rosevear, & McKinnon, 1996), age and years of teaching experience (Fisher, 2011) also contribute to their stress levels.

There are also studies that investigated on the stress levels of university faculty members in the Philippines. De Cadiz and Sonon (2012) noted the stress levels of 30 faculty members from Eastern Visayas State University-Carigara Campus. Their conclusions include no significant differences in all interested variables, including age, sex, academic rank, length of service and field of specialization, due to their normal levels of stress, high levels of confidence and high levels of stress tolerance. However, they also concluded that the mastery of their fields of specialization was the best predictor in assessing their stress levels. Betonio (2015) reported moderate levels of stress related to Economic-related and School's Policies and Management Practices stresses but low levels of stress for Work and Peer-related and Family-related stresses among faculty members from La Salle University in Ozamiz City, Misamis Occidental. Examining data collected among faculty members from 12 Colleges of Pharmacy in Metro Manila, Loquias and Sana (2013) found that stress had a

significant negative correlation with job satisfaction and was one of the two variables that significantly explained 33.7% of the variation in job satisfaction using stepwise regression. Dela Peña III (2012) studied the relationship of spirituality level and work stress among education professors in Cagayan De Oro City. No significant relationships were found between work stress and the variables age, gender, educational attainment, length of teaching experience and spirituality. However, the author recognized the practical importance of spirituality in decreasing their work stress based on in-depth interviews.

C. Religious Coping

Religious coping, one of the most common coping strategies, is defined as the use of religious beliefs and practices in the facilitation of problem solving in order to easily adapt and to prevent or alleviate the negative emotional effects of the stressful situation (Pargament, Smith, Koenig, & Perez, 1998). This coping strategy was shown to help Filipino workers such as fast-food chain workers (Ereno et al., 2014) and policemen (Inasoria, 2014) in decreasing their work stress. Pargament, Feuille, and Burdzy (2011) identified two types of religious coping: positive religious coping involves "a secure relationship with a transcendent force, a sense of spiritual connectedness with others, and a benevolent force" (p. 51), while negative religious coping tackles the spiritual stresses with the individual, with others and with God. This type includes religious coping methods, such as punishing God reappraisals (ex. feeling punished by God), demonic reappraisals (ex. feeling that the devil is involved in the stressor), spiritual discontent (ex. expressing dissatisfaction with God's relationship to the individual) and interpersonal religious discontent (ex. expressing dissatisfaction with the relationship with the church/clergy to the individual).

D. Research Objectives and Questions

Considering the teaching profession as one of the most stressful professions (Wiggins, 2015) and the lack of financial resources allocated to around 700 public universities and colleges in the Philippines (Conchada & Zamudio, 2013; Commission on Higher Education [CHED], n.d.), the main objectives of this study were to determine the stress levels of public university faculty members in the Philippines and to identify significant predictors of their stress using multiple regression analysis. This study, in particular, included positive and negative religious coping as possible predictors of faculty stress. According to a 2015 report by WIN/Gallup International, 86% of Filipinos interviewed consider themselves as religious (Akkoc, 2015). As such, the researcher was also interested to see if faculty members also apply religiosity as a source of strength and comfort in their way of coping with stress. Besides the two types of religious coping, the following variables were also featured: age, gender, part-time/full-time status, job satisfaction, years of teaching experience in a public and/or private university, number of students being taught/handled for all classes for the current semester[1], number of different subjects being taught/handled for the current semester and number of teaching/class hours per week for all classes for the current semester. These variables were chosen based on findings from previous researches and suggestions from few faculty members the researcher was able to ask. The following questions were of interest for this study:

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[1] "Current semester" refers to the First Semester of Academic Year (AY) 2016-2017

1. Is faculty stress related to each of the predictors? (Are these explanatory variables significant predictors of faculty stress?)
2. Is an increase in stress associated to time constraints and/or student interaction related to a decrease in job satisfaction? (Do time constraints and/or student interaction subscale/s have significant negative correlations with job satisfaction?)
3. Is faculty stress decreased for faculty members who report using positive religious coping and vice-versa?

Methodology

A. Sample and Procedure

In order to participate in the study, participants must be (1) a part-time or full-time faculty member of a public university in the Philippines during the First Semester of AY 2016-2017, and (2) teaching at least a class (ex. lecture, laboratory, physical education) in a public university in the Philippines during the First Semester of AY 2016-2017. Participants were given the option to answer the survey in either online or paper format depending on which was more convenient for them. Survey forms/links were given to individuals (mostly faculty members known by the researcher) who provided the forms/links to faculty members from among their acquaintances. Survey administration and collection took place from October 6, 2016 to November 18, 2016.

B. Materials

A total of three instruments were included in the content of the survey. The Faculty Stress Index (FSI; Gmelch, Wilke, & Lovrich, 1984) originally consists of 45 items designed to identify kinds of situations faculty members report as stressful and to assist in the development of strategies in order to aid faculty members in their coping with stress (Gmelch, 1993). The 45 items are divided into five subscales representing the type of stressor: reward and recognition, time constraints, departmental influence, professional identity and student interaction. For this study, only 31 items[2] were included in the survey as these items (with their high loadings of at least .40) served as the basis in determining the subscales of the said index. These items were rated in a 5-point Likert scale from "very slight pressure" to "excessive pressure" with an option for "not applicable" if participants did not feel that the particular item contributed to their stress. The total faculty stress score was determined by getting the sum of ratings to all 31 items. A high score in the total faculty stress score is indicative of a high degree of faculty stress.

The Teacher Satisfaction Scale (TSS; Ho & Au, 2006) measures the overall satisfaction of teachers in their profession. This consists of five statements in a 5-point Likert scale from "strongly disagree" to "strongly agree". The total faculty (job) satisfaction score was determined by getting the sum of ratings to all five statements. A high score in the total faculty satisfaction score suggests a high degree of faculty

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[2] Researches such as Parveen (2013), Iqbal and Kokash (2011) and Jing (2008) also used the FSI as the instrument of choice but (1) did not use all 45 items, (2) included items that are not in the original FSI, or (3) categorized items into a different subscale/type of stressor.

satisfaction. Ho and Au found a Cronbach's alpha of .77 and a 2-week test-retest reliability value of .76 for their studied sample. For this study, the word "faculty" was added in the phrasing of all five statements as it is mostly used when pertaining to university faculty members.

The Brief RCOPE (Pargament et al., 2011) measures both positive and negative religious coping with major life stressors. Developed based on Pargament's (1997) theory on religious coping, it has helped increased the knowledge as to how religion plays a crucial role in an individual's situation of crisis and trauma. It consists of 14 items (seven for each subscale/type of religious coping) in a 4-point Likert scale from "not at all" to "a great deal". The total score for each subscale was determined by getting the sum of ratings to that subscale. The higher the subscale score, the more a person uses that type of religious coping.

Demographic questions like age, gender and marital status, and education-related questions such as number of students being taught/handled and number of teaching/class hours per week were also included in the survey. In addition, a portion in the survey was dedicated for the provision of emails for participants interested in receiving a summary of the results.

All statistical analyses were performed using the software SPSS Statistics.

Analysis and Results

A. Demographic Profile

A total of 106 faculty members participated in the study. However, six responses were not included in all analyses as much of the questions were not answered. After checking the distributions (skewness) of each variable, it is worth noting that during the semester majority of the participants had a full-time status, taught two to four subjects and did not employ negative religious coping at all (i.e. received the lowest possible score for negative religious coping in the Brief RCOPE). Table 1 and Table 2 feature the descriptive statistics of each variable.

Variable	Quantity/Percentage
Gender	
Male	39
Female	61
Marital Status	
Single	48
Married	47
Separated	3
Widowed	2
Religion	
Roman Catholic	70
Born-Again Christian	7
Baptist	4
Protestant-UCCP	3
Agnostic	3
Others	13
Highest Educational Attainment	
Bachelor's Degree	38
Master's Degree	47
Doctorate Degree	12
Professional Degree	3
Current Academic Position	
Lecturer	21
Instructor	35
Assistant Professor	29
Associate Professor	12
Professor	3
Part-time/Full-time Status*	
Part-time	21
Full-time	79
Public University	
University of the Philippines Diliman	34
Bataan Peninsula State University	26
University of the Philippines Manila	14
Bicol State College of Applied Sciences and Technology	14
Quezon City Polytechnic University	7
Others	5
Taught Previously in an Educational Institution	
Yes	46
No	54

Note: *Lecturers are considered working part-time, while the remaining positions are considered working full-time.

Table 1: Descriptive Statistics of Variables I

Variable	Mean	Standard Deviation	Range
Age	37.96	11.53	21-63
Years of Teaching Experience	11.57	10.33	.17 (2 months)-39
Number of Students	139.55	104.64	12-450
Number of Different Subjects*	3.24	1.67	1-11
Number of Teaching/Class Hours	16.85	9.80	3-45

Note: *For example, if a faculty member is currently teaching two classes of Psych 101, a class of Psych 102 and two classes of Psych 103, then he/she is teaching three different subjects (Psych 101, Psych 102 and Psych 103).

Table 2: Descriptive Statistics of Variables II

B. Faculty Stress Index

The reward and recognition subscale refers to the "inadequate rewards, insufficient recognition, and unclear expectations" (Gmelch, 1993, p. 26) in teaching, research and service. Receiving inadequate salary to meet the financial needs was the area in which the participants felt the most pressured for this subscale with a mean of 2.91. This was followed by the lack of congruency in institutional, departmental, and personal goals with a mean of 2.55. The area where the participants reported the least pressure was not having clear criteria for evaluation of research and publication activities with a mean of 2.07.

The time constraints subscale includes insufficient time to prepare for class lessons, attending meetings, heavy workload and others. For this subscale, participants felt the most pressure for having job demands which interfere with other personal activities with a mean of 2.95. This was followed by attending meetings which take up too much time with a mean of 2.87. Being interrupted frequently by telephone calls and drop-in visitors was the area with the least amount of pressure by the participants with a mean of 1.56.

The departmental influence subscale refers to activities involving the department chair, including influencing the chair's decisions, resolving difference with the chair and understanding how the chair evaluates the performance of the faculty. Not knowing how their chair evaluates their performance and lacking personal impact on departmental/institutional decision-making were the two most pressured areas for this subscale with means of 2.19 and 2.16 respectively. Resolving differences with their chair, on the other hand, was the least pressured area with a mean of 1.71.

The professional identity subscale relates to building faculty reputation and having high self-expectations. For this subscale, the area where the participants reported the most pressure was imposing excessively high self-expectations with a mean of 2.96. Next to this was preparing a manuscript for publication with a mean of 2.91. However, securing financial support for their research was the least pressured area with a mean of 1.97.

Finally, the student interaction subscale refers to the interaction between the faculty and the students in teaching, evaluating and advising. Evaluating the performance of students was the most pressured area for this subscale with a mean of 2.61. This was followed by teaching/advising inadequately prepared students with a mean of 2.59.

Participants reported the least pressure in resolving differences with students with a mean of 2.01.

Overall, imposing excessively high self-expectations ($M = 2.96$) and having job demands which interfere with other personal activities ($M = 2.95$) were the top two most pressured areas by faculty members who participated in this study. Total faculty stress scores ranged from 18 to 141 out of a possible 155. With a mean of 74.19 ($SD = 24.55$), faculty members, in general, felt slight to moderate pressure when dealing with these stressors. The descriptive statistics, including reliability analysis (Cronbach's alpha), of each FSI subscale are featured in Table 3.

Subscale	Number of Items	Total Possible Score	Mean	Standard Deviation	Range	Cronbach's α
Reward and Recognition	8	40	18.67	9.27	0-38	.90
Time Constraints	10	50	25.28	9.13	5-48	.86
Departmental Influence	4	20	8.02	5.05	0-19	.87
Professional Identity	4	20	10.65	4.23	0-19	.61
Student Interaction	5	25	11.57	4.44	4-22	.79
Total Faculty Stress Score	31	155	74.19	24.55	18-141	.92

Table 3: Descriptive Statistics for Faculty Stress Index

C. Teacher Satisfaction Scale

Total faculty (job) satisfaction scores ranged from 8 to 25 out of a possible 25. With a mean of 18.12 ($SD = 3.67$), it can be noted that faculty members, in general, were somewhat satisfied with their jobs. Highest rated statement was "I am satisfied with being a teacher/faculty" with a mean of 3.96, while the lowest rated statement was "My working conditions as a teacher/faculty are excellent" with a mean of 3.24. Using reliability analysis, the Cronbach's alpha of the whole instrument was .76, which is close to the one provided by Ho and Au (2006).

D. Brief RCOPE

Total positive religious coping scores ranged from 7 to 28 out of a possible 28 ($M = 20.03$; $SD = 5.87$), while total negative religious coping scores ranged from 7 to 22 out of a possible 28 ($M = 9.50$; $SD = 3.72$). Using a paired-samples t-test, significant differences were found between positive and negative religious coping, $t(99) = 16.86$, $p < .05$. This concludes that faculty members in this study preferred positive religious coping as a strategy to decrease their stress over negative religious coping. Reliability analysis indicated a Cronbach's alpha of .90 for the positive religious coping subscale, .84 for the negative religious coping subscale and .86 for the whole instrument, all of which show high reliability.

E. Correlation and Other Analyses

Table 4 summarizes the correlation values of all interested variables after performing a two-tailed Pearson correlation analysis. To highlight particular correlations, faculty stress had significant positive correlations with part-time/full-time status, $r = +.28$, $p < .01$, and negative religious coping, $r = +.24$, $p < .05$. Having higher faculty stress was

associated more with having a full-time job. In addition, the more a faculty member used negative religious coping, the more stress one experienced. Faculty stress had a significant negative correlation with job satisfaction, $r = -.24$, $p < .05$. The higher the job satisfaction, the lower the stress a faculty member experienced. When it comes to the correlations with religious coping, the negative type had significant negative correlations with gender, $r = -.29$, $p < .01$, which means that negative religious coping was associated more to males than females. On the other hand, the positive type had significant positive correlations with the number of students being taught/handled, $r = .37$, $p < .01$, number of teaching/class hours per week, $r = .36$, $p < .01$, and very interestingly negative religious coping, $r = .21$, $p < .05$.

Independent-measures t-test confirmed significant differences between male and female faculty members in negative religious coping, $t(98) = 3.01$, $p < .05$, with males ($M = 10.85$, $SD = 4.21$) having a higher score than females ($M = 8.64$, $SD = 3.10$). No significant differences were reported for job satisfaction, $t(98) = -1.68$, $p > .05$, positive religious coping, $t(98) = -1.09$, $p > .05$, and faculty stress, $t(98) = 1.22$, $p > .05$. The test also confirmed significant differences between part-time and full-time faculty members in faculty stress, $t(98) = -2.87$, $p < .05$, with part-time faculty members ($M = 61.00$, $SD = 23.63$) having a lower stress score than full-time faculty members ($M = 77.70$, $SD = 23.71$). No significant differences were reported for job satisfaction, $t(98) = -.97$, $p > .05$, positive religious coping, $t(98) = -1.29$, $p > .05$, and negative religious coping, $t(98) = .76$, $p > .05$.

	Gender	Age	Year	Part/Full-time	Students	Subjects	Hours	Satis-faction	Positive	Negative	Stress
Gender	1	.05	.06	-.01	.10	.02	-.06	.16	.11	-.29**	-.12
Age	.05	1	.84**	.32**	.01	.15	.07	.17	.09	.10	-.09
Year	.06	.84**	1	.39**	.02	.16	.13	.26**	.15	.10	.00
Part/Full-time	-.01	.32**	.39**	1	-.05	.21*	.16	.10	.13	-.08	.28**
Students	.10	.01	.02	-.05	1	.26**	.41**	.05	.37**	-.03	.08
Subjects	.02	.15	.16	.21*	.26**	1	.27**	.18	.06	-.19	.01
Hours	-.06	.07	.13	.16	.41**	.27**	1	.17	.36**	.04	-.03
Satis-faction	.16	.17	.26**	.10	.05	.18	.17	1	.01	-.18	-.24*
Positive	.11	.09	.15	.13	.37**	.06	.36**	.01	1	.21*	.10
Negative	-.29**	.10	.10	-.08	-.03	-.19	.04	-.18	.21*	1	.24*
Stress	-.12	-.09	.00	.28**	.08	.01	-.03	-.24*	.10	.24*	1

Note: Year = years of teaching experience; Part/Full-time = part-time/full-time status; Students = number of students; Subjects = number of different subjects; Hours = number of teaching/class hours; Satisfaction = job satisfaction; Positive = positive religious coping; Negative = negative religious coping; Stress = faculty stress. Coding of gender: 0 = male and 1 = female; Coding of part/full-time: 0 = part-time and 1 = full-time.
* $p < .05$, ** $p < .01$

Table 4: Correlations of All Variables

F. Multiple Regression Analyses

Results of the multiple regression analysis for faculty stress are presented here. Model 1, consisting of all demographic variables (gender, age, year and part-time/full-time status), showed significance. This means that the model was significantly better in predicting faculty stress differences than the mean. In this model, the variable part-time/full-time status was only significant. Model 2, consisting of all demographic variables, number of students, number of different subjects, number of teaching/class hours and job satisfaction, also showed significance with part-time/full-time status, age and job satisfaction as significant predictors. Model 3, consisting of all interested predictors, also showed significance with part-time/full-time status, age, job satisfaction and negative religious coping as significant predictors. Participants who were working full-time experienced more stress than those who were working part-time by around 23 points in the stress score. As the age of the participants increased, the stress score decreased by around a point. The more satisfied they were with their job, the less stress they were by around a point in the stress score. Finally, the more they used negative religious coping, the greater the stress score by around 2 points.

Model 3 had the highest adjusted R^2 out of all the indicated models. Table 5 includes the statistics of each model and predictor.

	Model 1			Model 2			Model 3		
Variable	B	ß	95% CI	B	ß	95% CI	B	ß	95% CI
Gender	-5.68	-.11	[-15.22, 3.85]	-5.27	-.10	[-14.75, 4.20]	-1.74	-.04	[-11.56, 8.07]
Age	-.65	-.31	[-1.39, .09]	-.76*	-.36	[-1.48, -.04]	-.79*	-.37	[-1.50, -.08]
Year	.34	.14	[-.51, 1.19]	.60	.25	[-.24, 1.45]	.48	.20	[-.35, 1.32]
Part/Full-time	19.17*	.32	[6.78, 31.57]	21.08*	.35	[8.73, 33.44]	23.13*	.39	[10.86, 35.39]
Students	-	-	-	.04	.18	[-.01, .09]	.04	.19	[-.01, .09]
Subjects	-	-	-	-.28	-.02	[-3.22, 2.66]	.45	.03	[-2.48, 3.39]
Hours	-	-	-	-.33	-.13	[-.86, .20]	-.39	-.15	[-.92, .15]
Satisfaction	-	-	-	-1.60*	-.24	[-2.93, -.28]	-1.32*	-.20	[-2.63, -.00]
Positive	-	-	-	-	-	-	-.03	-.01	[-.92, .86]
Negative	-	-	-	-	-	-	1.70*	.26	[.34, 3.06]
R^2		.13			.22			.27	
Adjusted R^2		.09			.15			.19	
F-ratio		3.58*			3.21*			3.34*	

Note: B = unstandardized coefficient; ß = standardized/beta coefficient; CI = confidence interval; Year = years of teaching experience; Part/Full-time = part-time/full-time status; Students = number of students; Subjects = number of different subjects; Hours = number of teaching/class hours; Satisfaction = job satisfaction; Positive = positive religious coping; Negative = negative religious coping.
Coding of gender: 0 = male and 1 = female; Coding of part/full-time: 0 = part-time and 1 = full-time.
*$p < .05$

Table 5: Predictors of Faculty Stress

A stepwise regression analysis was also performed. Results confirmed that the model with part-time/full-time status (B = 22.95, t = 4.00, p < .05), age (B = -.44, t = -2.12, p < .05), job satisfaction (B = -1.28, t = -2.04, p < .05) and negative religious coping (B = 1.67, t = 2.71, p < .05) had a better predictor performance than Model 3 with just a .01 difference in the adjusted R^2 (F = 7.08, p < .05).

Another multiple regression analysis was performed with job satisfaction as the dependent variable and the FSI subscales as predictors. The overall model did not indicate any significance (adjusted R^2 = .04, F = 1.89, p > .05) with all subscales showing no significance. However, significant correlations (though low in effect size) were found between job satisfaction and the reward and recognition subscale, r = -.26, p < .05, two-tails, and the departmental influence subscale, r = -.23, p < .01, two-tails. The statistics of each subscale are presented in Table 6.

Variable	B	ß	95% CI	Significance
Reward and Recognition	-.08	-.19	[-.21, .06]	.27
Time Constraints	.07	.17	[-.05, .19]	.27
Departmental Influence	-.08	-.10	[-.32, .17]	.54
Professional Identity	-.14	-.16	[-.36, .07]	.19
Student Interaction	-.06	-.07	[-.27, .16]	.61

Note: B = unstandardized coefficient; ß = standardized/beta coefficient; CI = confidence interval.
*p < .05

Table 6: Predictors of Job Satisfaction

Conclusion

A. Discussion

Based on the performed multiple regression analysis, four predictors were significant to faculty stress among the participants: part-time/full-time status, age, job satisfaction and negative religious coping. The following findings are made in relation to the four significant predictors. Starting off with the first two mentioned predictors, although correlation analysis revealed that part-time/full-time status and age were positively correlated with each other (r = +.32, p < .01, two-tails), multiple regression analysis revealed opposite effects for stress levels: full-time faculty members had higher stress levels than part-time faculty members, but the stress levels decreased as faculty members got older. With the opposing results from the two analyses, the researcher investigated on how age became a significant predictor of faculty stress.

| | Scenario A | | Scenario B | |
Variable	Model 1A	Model 2A	Model 1B	Model 2B
Gender	-3.72 (.43)	-3.82 (.42)	-5.68 (.24)	-3.82 (.42)
Age	-.34 (.11)	-.74 (.04)*	-.65 (.08)	-.74 (.04)*
Part/Full-time	21.08 (.00)*	19.14 (.00)*	19.17 (.00)*	19.14 (.00)*
Satisfaction	-1.54 (.02)*	-1.72 (.01)*	-	-1.72 (.01)*
Year	-	.57 (.18)	.34 (.44)	.57 (.18)

Note: Significance values are in parenthesis. Part/Full-time = part-time/full-time status; Satisfaction = job satisfaction; Year = years of teaching experience.
Coding of gender: 0 = male and 1 = female; Coding of part/full-time: 0 = part-time and 1 = full-time.
*$p < .05$

Table 7: Two Scenarios (Unstandardized Coefficients and Significance Values)

Table 7 presents two possible scenarios when certain variables were entered into the multiple regression analysis. For Scenario A, assuming that the variables gender, age, part-time/full-time status and job satisfaction were entered into the analysis (Model 1A), both part-time/full-time status and job satisfaction were significant predictors of faculty stress. But when the variable for years of teaching experience was added (Model 2A), age also became a significant predictor. This can be attributed to the very strong significant positive correlation between age and year, $r = +.84$, $p < .01$, two-tails. For Scenario B, supposed that the variables gender, age, part-time/full-time status and year were entered into the analysis (Model 1B), the latter variable was the only one significant to predict faculty stress. However, when job satisfaction was added (Model 2B), age and job satisfaction also became significant predictors. This can be associated to the significant correlation between year and job satisfaction, $r = +.26$, $p < .01$, two-tails. Considering the two scenarios and the correlations of these variables, a possible contributor as to how age became a significant predictor of faculty stress is the age-year-job satisfaction relationship. The weak positive correlation between age and part-time/full-time status may be overpowered by both the very strong significant positive correlation between age and year and the significant positive correlation between year and job satisfaction. Age was not significant at first, but because of its connection with job satisfaction via year, its strength to predict faculty stress increased. The said relationship was also confirmed based on the collinearity diagnostics. As the highest variance proportions for age, year and job satisfaction were associated with the same dimensions/eigenvalues, this indicated multicollinearity, or that the three variables were intercorrelated.

The results for part-time/full-time status is contrary to the results provided by Greene et al. (2008) and Gappa (1987) that part-time faculty members experience more stress than full-time faculty members, but in line with the findings provided by Gmelch (1993) and Drakich et al. (2012). The latter research reasoned that full-time faculty members are expected to spend more hours to teach to a great number of students (including having a class with the largest possible number of students) and to create outputs related to the areas of service and research. The results for age supports the findings of Buckholdt and Miller (2008) and Gmelch et al. (1986) as younger faculty feel greater pressure to show their competencies in different aspects of their academic

work, especially when competition for academic promotion is extremely intense. Furthermore, younger faculty feel more stress as they face the challenge of balancing their personal and professional commitments.

Stress levels of faculty members also increased as their satisfaction levels decreased. As reported earlier, though the subscales of the FSI were not significant predictors of job satisfaction, correlations were found for both reward and recognition, and departmental influence subscales. Time constraints and student interaction subscales, as earlier hypothesized, did not show significant correlations with job satisfaction. Considering the current situation of the lack of financial resources allocated to Philippine public universities, this confirms the theory of Herzberg, Mausner, and Snyderman (1959) that recognition, whether intrinsic (ex. approval by peers and institution) or extrinsic (ex. salary, extra resources), is a crucial component that positively influences satisfaction in any job. Departmental influence is also crucial as it influences how a faculty member evaluates relationships with departmental/institutional decision-makers and thus job satisfaction (Drakich et al., 2012; Bentley et al., 2012).

When it comes to religious coping, faculty members preferred positive religious coping as a strategy to decrease their stress more than negative religious coping. In addition, negative religious coping increased the stress levels of faculty members based on multiple regression analysis. This shows that Filipino faculty members often use religiosity as a source of strength and comfort in their way of coping with stress. This also supports the findings of Pargament et al. (1998) and Ano and Vasconcelles (2005) that negative religious coping is associated to negative psychological adjustment to stress. Religiosity, therefore, is "an important personal factor influencing appraisal by enabling individuals to evaluate in a more positive and purposeful light" (Wong & Wong, 2006, p. 39). An interesting result from the performed correlation analysis is that positive religious coping had a significant positive (though not strong) association with negative religious coping. This means that faculty members may use positive and negative religious coping concurrently. While a faculty member may regularly engage in positive religious coping, this does not rule out the possibility of facing religious struggle and doubt. This matter was earlier highlighted by Fitchett et al. (2004), "Positive religious coping is not the opposite of negative religious coping" (p. 191). In addition, faculty members may resort to negative religious coping as relying on God or the church solely may not be enough to cope in some of their academic-related stresses. Faculty members may also turn to other problem-focused and emotion-focused coping strategies, such as active coping, social support and positive interpretation (Carver, Scheir, & Weintraub, 1989).

B. Limitations and Directions for Future Research

Despite the results presented, a number of limitations were noted throughout the study. First, it only considered 10 factors as possible significant predictors of faculty stress given the generally small number of participants in this study. There are still many factors that may be significant. These include marital status, academic position (ex. instructor, associate professor), if the faculty member is still studying, number of different subjects usually required to teach/handle in a semester and the number of

teaching/class hours per week usually required in a semester. Future research should also study these factors as possible significant predictors of faculty stress.

Second, a faculty member's stress and job satisfaction levels may not be constant all throughout the semester as they were evaluated on a particular day/period. For instance, a faculty member's stress and job satisfaction levels during midterms week may be different from his/her stress and job satisfaction levels during a regular week. Future research should consider evaluating all participants on a particular day/period, most preferably during a week that is less stressful for them.

Third, the study sample may not best represent all public university faculty members in the Philippines since the sample size was generally small, and around 80% of the participants were faculty members from public universities located in Metro Manila. The small sample size can be attributed to the low response rate. Future research should include a larger population possibly getting participants from each region of the Philippines to make it more representative.

Finally, it is important to consider that the university's culture, though not examined in this study, can greatly affect the faculty members' stress levels and job satisfaction ratings. Additional research is required to examine aspects of the university's culture that may impact the faculty members' experiences of stress and coping.

This study can be useful in industrial-organizational psychology and school psychology. Psychologists from these fields can provide recommendations to university/department/institute leaders on possible ways to help decrease the stress levels of their faculty and improve their perceptions about their working environment. Clinical psychologists can also strategize psychotherapies and other clinical interventions (ex. workshops) that can decrease their stress levels and thus improve their psychological well-being. As the reward and recognition subscale of the FSI showed significant correlations with job satisfaction, this could also be addressed to CHED and other related government agencies in order to provide more support on the necessity of additional budget for public university faculty members.

Acknowledgement

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Prevention and Eradication of Corruption:
Optimization of Through Legal Research in College

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Abstract
Current world progress has brought sophisticated influence in the development of the level of corruption crimes. Today, law enforcement corruption eradication is highly anticipated for the direction of change that much better. The role of the College and in creating the next generation of the nation has a very big role for such changes. In the social field, including legal research, is a material that can create change towards a direction of improvement in law enforcement. Legal research can give meaning and contribution in the spirit of law enforcement that aligns scientifically. The problem is how to create optimization studies law in College can be an innovation in the prevention and eradication of criminal acts of corruption. With regards to the rampant growth of corruption in every sector, certainly brought a bad impact to the achievement of national development as a whole. The role of academics through thought-provoking research can give donations for research as strategic measures to be able to prevent and provide recommendations in the eradication of criminal acts of corruption. Legal research study results may provide direction toward improvement. Therefore, the need for optimizing the results of legal research for better law enforcement in the future, particularly in the prevention and eradication of criminal acts of corruption.

Keywords: Corruption Prevention, The Eradication of Corruption, Optimization, Legal Research, College.

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Introduction

Corruption is contrary to the general norms applicable in the community. Corruption has a composite effect spreading thoughout the total life of society. In encyclopedia of Indonesia "corruption" (from the Latin: i.e. corruption bribery and corruptore which means damaging) a symptom where officials, State agencies misusing authority with forgeries and the occurrence of bribery, other irregularities.[1]

According to Fockema Andreae, says corruption is derived from Latin corruptus or corruptio. Next was originally mentioned comes from corrumpere. French form of corrupt, the language of the Netherlands and the United Kingdom corruptie.[2]

According to Black's Law Dictionary:[3]

1. Depravity, pervension or taint; an impairment of integrity, virtue, or moral principle, the impairment of a public official's duties by bribery.
2. A fiduciary's or official's use of a station or office to procure sure benefit either personally or for someone else, contrary to the rights of others; an act carried out with the intent of giving some advantage inconsistent with official duty or the rights of others.

In other definition, the meaning of corruptin is depravity or an impairment of a public official's duties by briberry, or the act of doing something with an intent to give some advantage inconsistent with official duty and the rights of others.[4] According to the common usage of the term of 'corruption' officials, we call corrupt a public servant who accepts gifts bestowed by a private person with the object of inducing him to give special consideration to the interests of the donor.[5]

Literally, corruption means evil, rotten or cheating, therefore the criminal acts of corruption can be interpreted as a consequence of which was the delict deeds of evil, rotten, corrupt or bribes.[6] Corruption is damaging in terms of moral facet as to the nature and circumstances of the foul, damaging the Office in agencies or Government apparatus, abuses of power in the Office because the granting of economic and political factors, as well as the placement of the family or group into limited under the authority of his Office.[7] Economically and politically, said corruption contain meaning and connotation. According to Shleifer and Vishny, as quoted by Arwana Isang, in the context of the economy, corruption in public office use sense contains for personal gain.[8]

The problem of corruption up to the present moment is not only a matter of one nation, but it has become a matter of transnational or cross-border territory, based on the United Nations Convention Againts the National anti-corruption (UNCAC) in

2003. Current world progress has brought sophisticated influence in the development of the level of corruption crimes. Today, law enforcement corruption eradication is highly anticipated for the direction of change that much better.

The level of progress of today's world have given the influence in the development of corruption crimes. Criminal acts of corruption not only happens in certain sectors, but it is already widespread in various sectors. The world through the UN give criticism for corruption and attempt to let other countries in the world are also eradication as a common enemy. Indonesia, as part of Asian countries and one developing country, also gained the maximum role in corruption eradication.

The Fenomenon of corruption consist of bribery, extortion, nepotism. The issue of corruption became extraordinary things caused by three things:[9]

1. The corruption concerns the people's money or property of the State which must be used according to the will of the people or the legislation that created the State;
2. Corruption is a disease that destroys a society when not immediately dammed;
3. Corruption involving the people who are supposed to be role models for the community.

Current world progress has brought sophisticated influence in the development of the level of corruption crimes. Today, law enforcement corruption eradication is highly anticipated for the direction of change that much better. The role of the College and in creating the next generation of the nation has a very big role for such changes.

In the social field, including legal research, is a material that can create change towards a direction of improvement in law enforcement. Legal research can give meaning and contribution in the spirit of law enforcement that aligns scientifically. The problem is how to create optimization studies law in College can be an innovation in the prevention and eradication of criminal acts of corruption. With regards to the rampant growth of corruption in every sector, certainly brought a bad impact to the achievement of national development as a whole.

The role of academics through thought-provoking research can give donations for research as strategic measures to be able to prevent and provide recommendations in the eradication of criminal acts of corruption. Legal research study results may provide direction toward improvement. Therefore, the need for optimizing the results of legal research for better law enforcement in the future, particularly in the prevention and eradication of criminal acts of corruption.

The Role of Higher Education In The Prevention of The Crime of Corruption

In Indonesia, in the higher education Act Number 12 year 2012, higher education is part of a national education system that has a strategic role. This role participate in the intellectual life of the nation and the advance of science and technology by observing and implementing the value of Humanities as well as the pembudayaan and the empowerment of the nation of Indonesia.

The College is an educational unit organized higher education. College as a leader in the intellectual life of the nation by developing science and technology to advance the General wellbeing and social justice for all the people of Indonesia. The College also called Tridharma Tridharma, is the duty of the College to conduct education, research, and service to the community. In this regard, the study is one part of the obligations of the Tri Dharma. Research is an activity that is conducted according to the rules of the scientific method and systematically to obtain the information, data, and information related to understanding and/or testing a branch of science and technology.[10]

College as a higher education institution which organizes research and devotion to society, must have autonomy in managing their own institution. It is required in order for the development of science and technology in college academic freedom and applies the academic pulpit, as well as scientific autonomy. Thus the College can develop a culture of academic excellence for not only Academic who serves as the authoritative and scientific community capable of performing interactions that raised the dignity of the nation of Indonesia in international relations.

National development in the field of education is an effort to educate the nation and improve the quality of life of human beings much better Indonesia and dignified. The College has a central role in science as the highest level academic pathway. One of the layout of the success in creating a generation of successful education and dignity was in the hands of educators. Lecturer as educators have the functions, roles, and a very strategic position in national development in education. Duties and obligations of lecturers as an educator is subject to the Tri Dharma Universities, i.e. do the teaching, research and public service. Research is a scientific study can give you ideas and thoughts that support in teaching and devotion.

With regards to the rampant growth of corruption in every sector, certainly brought a bad impact obstructed the achievement of national development as a whole. The role of academics through thought-provoking research can give donations for research as strategic measures to be able to prevent and provide recommendations in the eradication of criminal acts of corruption. Academia is the party that is in line with independent scientific thinking as one form of moral responsibility as educators. Therefore, the need for optimizing the results of legal research for law enforcement studies contributing to a better future. Starting from the academic world, will be able to give birth to ideas of eradication of corruption should not be faded and outages in Indonesia.

The College has an important role in the agenda for the eradication of corruption. By sticking to the ' doctrine ' Tri Dharma Universities, there are three important roles for the College, including:

1. In carrying out the activities of the tri dharma universities in the form of education, research and community service, then College is supposed to make room for the expansion of the agenda for the eradication of corruption.

2. The College has a large agenda as central to the eradication of corruption. It also opens up the opportunity of cooperation with non-governmental organizations (NGOs). During this time many NGOs took an important role in luarg circles as a college. Whereas, in the renewal of corruption eradication agenda, most NGOs also involves energy and the thinking of College. Therefore, colleges should be able to do the role, especially to renew the law rules won't help the agenda of eradicating corruption.

3. The College is attempting to perform a dual role at once, that is, on the one hand doing emphasis in as a form of capacity building in institutions that are directly related to the agenda of eradicating corruption. On the other hand, doing emphasis from outside to do a ' control ' are strictly against the agenda of eradicating corruption.

Legal Research As Part of The Eradication of Corruption

When we talk about the rule of law in the eradication of corruption, then it must first be clear what are the characteristics of corruption. It's important to be able to give you a map so that in academia, in legal research can also right on target in prevention. The characteristics of corruption can be grouped into 9 (nine) parts, i.e.:[11]

Number	Characterictics
1	Corruption always involves more than one person
2	Corruption on the whole involves secrecy
3	Corruption involves an element of mutual obligation and mutual benefit
4	Corrupt methods usually attempt to camouflage their activities by resorting to some form of lawful justification
5	Those who are involved in corruption are those who want definite decisions and those who are able to influence those decisions
6	Any act of corruption involves deception, usually of the public body or society at large
7	Any form of corruption is a betrayal of trust
8	Any form of corruption involves a contradictory dual function of those who are commiting the act
9	A corrupt act violates the norms of duty and responsibility within the civic order

In the academic world, to foster a spirit of anti corruption, must be implanted anti-corruption values. This is useful for supporting the strategy for the eradication and prevention of corruption with the understanding of the values and principles of anti-corruption. Anti-corruption values that will support anti-corruption principles to be able to run well, consisting of:[12]

1. Honesty;
2. Hard work;
3. the Concern;
4. Simple;

5. Independence;

6. Courage;

7. Discipline;

8. Justice;

9. Responsibility.

In addition to the anti-corruption values, there are also anti-corruption principles, namely:[13]

a. Accountability;

b. Policy;

c. Transparency;

d. Control policy;

e. control of Naturalness.

Forms/types of criminal acts of corruption and criminal acts related to corruption by law the crime of corruption the number 31 of 1999 *jo* 20 2001, can be grouped:

1. Against the law to enrich themselves and can be detrimental to the finances of the State;

2. Abuse of authority for the benefit of yourself and can harm the country's finances;

3. Bribing civil servants;

4. Give gifts to public servants because of his post;

5. Civil servants receive bribes;

6. Civil servants accept gifts relating to his position;

7. The Bribing of judges;

8. Bribing advocate;

9. Judges and advocates taking bribes;

10. Civil servants embezzled money or let embezzlement;

11. Civil servants fabricated books for examination administration;

12. Civil servants to harm evidence;

13. Civil Service let others destroy evidence;

14. Civil servants helping others destroy evidence;

15. Civil servants to squeeze;

16. Civil servants to squeeze other employees;

17. Contractors cheat;

18. The Comptroller the project let the fraudulent deeds;

19. The TNI/Polri Partner is cheating;

20. TNI/Polri counterparty Supervisors let the fraudulent deeds;

21. The recipient goods TNI/Polri let the fraudulent deeds;

22. Civil servants respectively State land to the detriment of others;

23. Civil servants participate in the procurement diurusnya;

24. Civil servants receive gratuities and not report KPK;

25. To interrupt the review process;

26. The suspect did not give information about his wealth;

27. The Bank did not provide a description of the suspect accounts;

28. A witness or expert who gives no information or give false information;

29. A person who holds the secret of the Office does not provide information or give false information;

30. Witnesses who opened the identity of the complainant.

Legal Research In College: Related Into Corruption

Legal research is primarily a scientific activity that is based on methods, certain thoughts and systematics, aiming to learn one or more symptoms of a particular law with the way analyse it, except that, then also held in-depth examination against the law to the facts and then lobbies for a solution of the above problems arising in the symptom in question.[14]

Corruption eradication effort is not easy. The problems are how to create optimization studies law in college can be an innovation in the prevention and eradication of criminal acts of corruption. It can be related about prevention *versus* eradication in corruption. It can give meaning and contribution in the spirit of law enforcement that aligns scientifically. In prevention, new paradigm as prevention is start from education. The role of the College and in creating the next generation of the nation has a very big role for such changes. In the social field, including legal research, is a material that can create change towards a direction of improvement in law enforcement.

In academic perspectives, there are two aspects about prevention of corruption. The first one is role of the college, and the second one is role of academic as general. The role of the college, consist are in creating the next generation of the nation has a very big role for such changes, the material of social field can create change towards a direction of improvement in law enforcement, with regards to the rampant growth of corruption in every sector, certainly brought a bad impact to the achievement of national development as a whole. In academic role, thought-provoking research can give donations for research as strategic measures to be able to prevent and provide recommendations in the eradication of criminal acts of corruption.

Conclusion

Academia is the party that is in line with the thought of independent legal research studies can provide direction toward improvement. Starting from the academic world, will be able to give birth to ideas of eradication of corruption should not be faded and outages in Indonesia. scientific as one form of moral responsibility as educators. Therefore, the need for optimizing the results of legal research for law enforcement studies contributing to a better future.

Research study results may provide direction toward improvement. The need for optimizing the results of legal research for better law enforcement in the future. The eradication of corruption should begin from the existence of the political will of the Government. The handling of the criminal offence of corruption also should be emphasized at the stage of prevention. This can be done by involving all sectors and support public participation and awareness of law is widely started from an early age. Prevention will be able to suppress corruption figures compared to eradication. Particularly in the prevention and eradication of criminal acts of corruption.

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Can Elective Course Be Used to Promote Meaningful Learning at Secondary Level? A Study of Students' Satisfaction in School-Based Course

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Abstract

The evolution of the traditional disciplinary curriculum was implemented by the education policy in Taiwan school curricula, at secondary level to create knowledge and understanding for the 21st century. This study was the first stage of the three-year research project supported by National Science Council of Taiwan, investigating the effectiveness of school-based elective courses in promoting students to develop core competencies and diverse ability.

A total of 17 multiple elective courses, 502 secondary level schoolgirls participated in the study. After 16-week classes in experiment, we interviewed students in depth and collected their evaluation and questionnaires. Through data analysis, the findings showed a statistically significant outcome in Teaching strategy, Learning gains, Reflective learning, and Course cognition, but except Learning attitude outcome dimensions from the survey of students' satisfaction. Participants in the planning of self-learning content and active collection of learning profile two items outcome show no significant, further from the qualitative data analysis that the class time is too short and the first contact with elective courses so that some students cannot master learning skills. But most students indicated the elective courses provided them with an opportunity to explore a wide range of subjects. This study proves that elective courses are feasible at secondary level, especially hands-on, exploratory and non-lecture courses could effectively improve students' interest in learning.

Keywords: school-based courses, core competencies in Taiwan K12 education, high school

1. Introduction

While facing the impacts of globalization, declining birth rate, and the rapid development of digital technology, Ministry of Education in Taiwan announced the curriculum guideline of 12-year Compulsory Education in November 28th, 2014, in order to raise the quality of human resources and lay the foundations for personal and national development. The new guideline took core competencies as the main point of the whole curriculum development, focused on the coherence among different educations levels and the integration among every subject.

Traditional disciplinary curriculum was undergoing changes due to the education policy, 12-year Compulsory Education, in Taiwan school curricula. The government proposed a curriculum guideline to expressly provide that high schools should open at least 6 credits elective courses which were designed to meet student's interest, aptitude, capability and need, hoping that it could broaden students' horizon, cultivate their spirit of self-directed learning, problem solving skills, critical thinking ability and teamwork ability, and furthermore, develop their core competencies.

To investigate the effectiveness of school-based elective courses in promoting students to develop core competencies and diverse ability. The present study tried to investigate what the schoolgirls' satisfaction and their needs for elective course are in TCGS. Action research was used to explore the implementation and student learning experience of TCGS diverse elective courses. The main steps are as follows.

At first, develop the curriculum design of school-based elective courses (guided by core competencies), confirm the course content and the classification, and let students choose their courses online. Next, each course goes on for 16 weeks (32 hours). Then, carry out the teacher interviews, students semi-structured interviews in the process of course and implement the survey at the end of the course. Use both quantitative and qualitative analysis to evaluate the students' learning reflections and their learning effectiveness. Then the researcher achieve a triangulation of qualitative data and verify the correctness of the results through the content of student feedback, teachers teaching reflection, and data of semi-structure interviews.

2. Literature Review

2.1 Core competencies in Taiwan K12 education

In recent years, the importance of "competencies" has been emphasized by lots of international organizations, including Organization for Economic Co-operation and Development (OECD), United Nations Educational, Scientific and Cultural Organization (UNESCO). Ministry of Education in Taiwan has announced the curriculum guideline of Twelve-year Compulsory Education in November 28th, 2014. The new curriculum guideline highlights the cultivation of "lifelong learners" and "core competencies", which means the knowledge, ability, and attitude to help students face the modern life and future challenges. A three-dimension structure of "act autonomously," "communicate interactively," and "social participation" forms the framework regarding core competencies. Under this structure there are nine themes, which are "body fitness and self-improvement, " "system thinking and problem solving, " "plan execution and creative change, " "symbol application and

communication expression, " "technology information and media literacy, " "art cultivation and aesthetic literacy, " "moral praxis and citizen consciousness, " "interpersonal relationship and teamwork collaboration, " and "multi-culture and international understanding". (Fan & Hung, 2015)

Competency is an idea consisting the knowledge, ability, and attitude of helping every individual develops into a healthy and complete person. (Tsai, 2010) The education reform in Taiwan this time hopes that student can become a lifelong learner with citizen literacy by the education of core competencies.

2.2 diverse ability

From the perspective of learning, self-directed learning remarkably influences the long-term development of the society, which means that it is not only the lifetime ability but also one of the necessary citizen literacy in twenty-first century. (Timothy et al., 2010)

Meaningful learning focuses on whether students can actively trigger their intrinsic and extrinsic motivation, which is always concerned by the researchers. (Guglielmino, 1977; Robertson, 2011; Teo et al., 2010) And self-directed learning is exactly that kind of learning ability. Moreover, Ausbum(2002), Guglielmino(1977), and Knowles(1975) separately point out that the core concept of self-directed learning comes from the autonomy, initiative, independence, and love of learning of learners. Garrison(1997) also notes that as one of the learning methods, self-directed learning can be defined as the construction of self-monitoring and self-management, the meaningful and valuable learning results. Besides, self-directed learning is a process about setting goals, analyzing missions, implementing plans, constructing and evaluating all by learners themselves. (Loyens, Magda, & Rikers, 2008; Robertson, 2011)

Self-directed learning isn't equal to independent learning. On the contrary, students need their teacher to take the responsibility of being the leader guiding them in the whole process of self-directed learning. (Robertson, 2011; Teo et al., 2010) However, teacher is no longer the controller of the classroom. In this age of knowledge-based economy, students become the center of learning and dominate their own learning. The cultivation of self-directed learning competencies is therefore the main point of the education reform in Taiwan this time, and the main content of this research as well.

3. Purpose

This study would try to answer the following research questions based on the analysis from semi-structure interviews and survey results:

(a). Can elective course be used to promote meaningful diverse Learning in K-12 education?

(b). What are the differences between various types of school-based elective courses in learning satisfaction and experience?

4. Methodology

4.1 Research design methods

The qualitative methods used in the study were observation, semi-interview and documents analysis from student feedback. For both teachers and researchers involved in this study, the most important task has been to report and document the research experiments and findings as thoroughly as possible by providing detailed descriptions of the ideas of choosing the elective course and learning harvesting by the schoolgirls. The purpose of data collection has been to create an embryonic form of the way schoolgirls choose their elective course.

Integrating action research and the evaluation of case study designs is often used to assess and explain the results of specific interventions which have been implemented in a real-life context (Yin, 1993). A case study of action research design was used to provide evidence regarding answers to the questions of this paper.

As we aimed to investigate whether elective course be used to promote meaningful diverse learning in K-12 education and the different learning experience between various types of school-based elective courses, we adopted an exploratory case study methodology. Students' learning worksheets, self-reflection records, final report and semi-structured interview were analyzed qualitatively to provide insight into the empirical findings. A survey of the learners' degree of learning satisfaction and experience was implemented to the students after the elective courses was finished. Using both quantitative and qualitative methods helps triangulate results from diverse data sources. Within mixed methods the researchers can inspect those different and overlapping facets of phenomenon, discover paradoxes, contradictions, and new perspectives, and expand the scope and breadth of a study (Tashakkori & Teddlie, 2003).

4.2 Participants

Teachers

The course of this study was a total of four major categories of 17 courses, a total of 30 teachers to provide and teach. Each course was developed by teachers in a single or cross-domain cooperation according to course objectives. Teachers were proficient at course content, including high school teachers and university lecturers.

Students

Participants of this study were five hundred and one 10th graders, all females, from 14 classes in a local high school in Taiwan. Their average age was 16, and their educational experiences were similar. T-tests showed that the academic performance of each class was not different ($p > 0.1$). According to the participants' choice, they were assigned to 21 classes.

4.3 Research procedure and Data analysis

To explore the participants' perceptions of their learning satisfaction & experience in elective course, both quantitative and qualitative data were collected and analyzed. Qualitative data of this research project included learning experience feedback records and semi-structured interviews with open ended questions in order to understand the student's comments about the elective course.

The learners' degree of satisfaction & experience questionnaire consisted of five aspects namely: "teaching strategy", "learning attitude", "peer interaction", "learning gains", and "course cognition", which had 6, 6, 5, 5, and 6 questions respectively. A five-point Likert scheme was used to rate the questionnaire items (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The instrument constructed was validated by experts in curriculum design. The Cronbach's alpha values of the five dimensions were 0.87, 0.86, 0.87, 0.87 and 0.95, and the overall Cronbach's alpha value was 0.96.

At week 17 of the course, all participants were encouraged to answer the questionnaire as honestly as possible, as there were no right or wrong answers and they were informed about the confidential and anonymous treatment of their responses to the survey.

For quantitative data analysis, we adopted descriptive statistics analysis method to analyze assessment of learners' degree of satisfaction & experience, an independent sample t-test was used in this research, test value was 3.5 which was then used in analyzing each question and compare with 3.5 to determine whether it had reached significant level. At last, we described the relation among each variable. And further with the qualitative research data, we tried to explain whether the elective courses could promote student diversity learning. And to answer research question two, a one-way analyses of variance (ANOVA) was conducted among the four type course using the survey data.

4.4 Data reliability and validity

In order to promote the quality and credibility of the study, according to Lincoln and Guba (1985) have proposed to increase the reliability indicators: credibility, migration, reliability and verifiability. In-field observation, analysis of participants' group-discussion records, four times semi-structure interviews and final report of each group' project work were employed in the study to achieve a triangulation of qualitative data.

4.5 School-based elective courses in TCGS

The elective courses in the study were classified into four major categories of 17 courses as follow.

Type 1: Language Learning
Type 2: Mathematics, Physics Advanced Learning
    -Traditional lecture teaching, group cooperative learning
Type 3: Interdisciplinary / hands-on courses

Type 4: Humanities and Arts courses
      -Hands-on activity, group activity, explore teaching

Table1.

Type 1: Language Learning	Number of student	Total
Second Foreign Language - Japanese(basic)	76	
Second Foreign Language - French(basic)	39	
Second Foreign Language - Spanish(basic)	41	190
Second Foreign Language - German(basic)	20	
Basic English Creation	14	
Type 2: Mathematics, Physics Advanced Learning		
Mathematics Exercises	20	
Pre trigonometric	26	90
Mathematical Modeling	15	
Digitized Physical Mechanics Experiment	29	
Type 3: Interdisciplinary / hands-on courses		
The X-files of Earth Science	22	
Ocean Mysterious Treasure	15	
Robots Creative Topics	21	127
Fashion Grand Tourday Group of Players	36	
Biology	33	
Type 4: Humanities and Arts courses		
Reading Media	24 /2	
Creative Painting Performance	19 /2	60
English Picture Book Creation	17 /1	

5. Result and Discussion

5.1 Quantitative analysis

5.1.1 The analysis of learning satisfaction and experience (descriptive statistics)

Aiming at the analysis of curriculum satisfaction and experience which proceeded in 18th week for all classes, we found out that the average score for the satisfaction of entire course was 3.88, the average score of each dimension as shown in Table1. Teaching strategy was 4.05, learning attitude was 3.55, peer interaction was 4.92, learning gains was 3.97, and course cognition was 3.94. According to the result above, we could know students obtained lower scores in learning attitude and peer interaction, and learning attitude dimension was not significantly in t-test(μ>3.5) result.

Table2. Descriptive statistics for all classes

dimension	M	S.D.	t (μ>3.5)
Teaching strategy	4.05	0.79	15.56***
Learning attitude	3.55	0.80	1.42
Peer interaction	3.92	0.79	11.81***
Learning gains	3.97	0.81	12.87***
Course cognition	3.94	0.94	10.52***
Tol.	3.88	0.74	11.69***

N=501, test value=3.5, *P<.05, **P<.01, ***<.001

5.1.2 Difference between the various types of courses

Research question two was to investigate whether the differences between various types of school-based elective courses in learning satisfaction and experience. To answer this question, a one-way analysis of variance (ANOVA) was conducted among the survey data from the students of 21 classes. And results was as table 4.

Table 4 shows univariate ANOVA results for each dependent variable. The univariate ANOVAs for teaching strategy, learning attitude, peer interaction, learning gains, and course cognition were significant ($p < .05$). Furthermore, post hoc analysis was performed to examine specific differences in each dimension between the 4 Type course, and described the results as follow.

Teaching strategy:

The ANCOVA result shows that the teaching strategy of the four groups were significantly different($F(3,466)=10.74$，$p<.001$). Furthermore, post hoc analysis was performed to examine specific differences in achievement between the four groups. Type 1 was significantly higher than Type 2, Type 3 was significantly higher than Type 2, Type 4 was significantly higher than Type 2. It is therefore concluded that the Type1, Type3 and Type 4 course had a significant accept than Type2 on teaching strategy in the elective courses.

Learning attitude:

The ANCOVA result shows that the learning attitude of the four groups were significantly different ($F(3,466)=8.92$，$p<.001$). Type 3 is significantly higher than Type 1 & Type 2, Type 4 is significantly higher than Type 1 & Type 2. It is therefore concluded that the Type3 and Type 4 course had a significant change on learning attitude in the elective courses.

Peer interaction:

The ANCOVA result shows that peer interaction of the four groups were significantly different($F(3,466)=3.79$，$p<.05$). Type 4 is significantly higher than Type 2, and there is no other significant difference between other types of courses
Learning gains:

The ANCOVA result shows that learning gains of the four groups were significantly different($F(3,466)=11.89$，$p<.001$). Type 1, 3, 4 are significantly higher than Type 2 individually. It is therefore concluded that the Type1, Type3 and Type 4 course had a significant accept than Type2 on learning gains in the elective courses.

Course cognition

The ANCOVA result shows that course cognition of the four groups were significantly different($F(3,466)=17.86$，$p<.001$). Type 1, 3, 4 are significantly higher than Type 2 individually. It is therefore concluded that the Type1, Type3 and Type 4 course had a

significant accept than Type2 on course cognition in the elective courses.

Overall, the result is significantly different (F(3,466)=11.75，p<.001). Type 1, 3 are significantly higher than Type 2. Type 4 is significantly higher than Type1 & 2.

Table3. Descriptive statistics for all type course

dimension	Type of course	Total	M	S.D.
Teaching strategy	（1）	190	4.05	0.78
	（2）	90	3.70	0.90
	（3）	127	4.20	0.68
	（4）	60	4.35	0.70
Learning attitude	（1）	190	3.44	0.77
	（2）	90	3.41	0.88
	（3）	127	3.74	0.77
	（4）	60	3.92	0.72
Peer interaction	（1）	190	3.89	0.75
	（2）	90	3.79	0.85
	（3）	127	4.02	0.75
	（4）	60	4.18	0.83
Learning gains	（1）	190	3.99	0.77
	（2）	90	3.58	0.91
	（3）	127	4.17	0.73
	（4）	60	4.22	0.80
Course cognition	（1）	190	4.00	0.89
	（2）	90	3.39	1.01
	（3）	127	4.22	0.82
	（4）	60	4.24	0.84
Overall	（1）	190	3.87	0.71
	（2）	90	3.58	0.83
	（3）	127	4.07	0.65
	（4）	60	4.18	0.69

Table4. One-way ANCOVA summery table for effects of the types of courses

Dimensions	source	SS	DF	MS	F	Post hoc comparisons
Teaching strategy	Between groups	19.15	3	6.38	10.74***	（1）>（2） （3）>（2） （4）>（2）
	Within groups	275.13	463	0.59		
	Total	294.28	466			
Learning attitude	Between groups	16.53	3	5.51	8.92***	（3）>（1） （3）>（2）
	Within	285.96	463	0.62		

	groups					(4) > (1)
	Total	302.49	466			(4) > (2)
Peer interaction	Between groups	6.93	3	2.31	3.79*	(4) > (2)
	Within groups	282.52	463	0.61		
	Total	289.46	466			
Learning gains	Between groups	22.33	3	7.44	11.89***	(1) > (2)
	Within groups	289.81	463	0.63		(3) > (2)
	Total	312.14	466			(4) > (2)
Course cognition	Between groups	42.33	3	14.11	17.86***	(1) > (2)
	Within groups	365.84	463	0.79		(3) > (2)
	Total	408.17	466			(4) > (2)
Overall	Between groups	18.06	3	6.02	11.75***	(1) > (2)
	Within groups	237.12	463	0.51		(3) > (2)
	Total	255.18	466			(4) > (1)
						(4) > (2)

*$p<.05$, **$p<.01$, ***$p<.001$

5.2 Qualitative analysis

Based on the semi-structured interview data, qualitative analysis and the learning satisfaction and experience questionnaire, the results of the inferential statistics could be interpreted as followed:

1. Generally speaking, students enjoy the multicultural experience and content in the language learning courses.
2. "Teamwork and communication skills are promoted." is the most general feedback, especially from the students in Type 3 & Type 4 courses.
3. Most of the students believe that their learning attitude are positive and active because they choose the courses they are interested in.
4. Students in Type 2 courses consider that teachers go too fast, the contents are too difficult, and they play a passive role in the classroom. The feedback correlates to the results of the statistical analysis. (in the teaching strategy, learning gains, and course cognition part)
5. Hands-on activity can make learning not only much more interesting but also closer to students' life.
6. Students hope that school can also offer elective courses in 11th grade.
7. Teachers should focus on the process evaluation instead of test scores or group scores.

6. Conclusions

This paper reports on the elective courses in 11th grade, over 18 weeks, exploring its effectiveness on participants' learning and learning attitudes established during the learning experience. According to the experimental results and discussion, the following conclusions are suggested.

1. The elective course design should be student-centered.

The traditional teacher-centered teaching strategy was helpless than student-centered in changing students' learning attitude. Thinking outside the box, letting students be the center of learning, and developing school-based elective courses can help students adapting to modern life and develop core competencies for the future.

2. Use different teaching strategies to activate teaching content is important in elective course.

For example, even though the lecture teaching strategy is used in the language learning courses, by integrating public issue, culture appreciation, and hands-on activity, it can still make students interested in learning languages.

3. The interdisciplinary & hands-on courses can promote student attitudes.

In the interdisciplinary & hands-on courses, students' learning attitude are significantly changed due to the communication and cooperation with peers. Moreover, the courses meet students' needs, too.
4. Elective course can broaden students' horizons and make them interested in learning.

Acknowledgement

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The Environment Encouraging "Something to Do", Being Lively, in Juvenile Correctional Facilities: Case Study in Juvenile Vocational Training Center, Thailand

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Abstract

The youth are always important for the future. With their limited experience and maturity, they occasionally make a mistake. In developing countries such as Thailand, the number of teenagers in juvenile correctional facilities is a serious problem. This qualitative case study was conducted to understand the life in Juvenile Vocational Training Centers (JVTC) in Thailand and important factors of environmental design of JVTC. Participatory observation was conducted in 15 JVTCs for 12 days considering personal context and circumstance. Typically, the activities in JVTC focus on rehabilitation programs which are boring for juveniles. Most of them ignore the program for various reasons. The result showed that juveniles cannot be rehabilitated efficiently if they feel depressed and they cannot feel lively if they are not secure. Clear environment is proposed to ensure that all juveniles can be always noticed by others for safety. Being lively, juveniles need to have "Something to do". The study has strongly recommended that 1) natural environment (such as pond, soil, and big tree) and 2) everyday environment (such as garage, street vender, and local meeting point) are key elements for them to start creating activities in JVTC. The environment with a good combination of these two elements is significant for juveniles to mean their future living in centers. "Something to do" in this case could be considered as driving force for them to be away from worry and be lively to benefit from future opportunities particularly from rehabilitation programs.

Keywords: Experience Design, Driving Force, Juvenile Detention, Correctional Facility, Rehabilitation

Introduction

Juvenile correctional facilities under the control of the Department of Juvenile Observation and Protection, Ministry of Justice, Thailand, consisted of three types: Juvenile Observation and Protection Center, Juvenile Observation and Protection Center with Remand Home, and Juvenile Vocational Training Center (JVTC). The main purpose of these centers is to provide the treatment and rehabilitation programs to juvenile offenders. However, current situation shows that there are rapid developments of law such as classification process, social and economic changes, as well as rehabilitation programs. In the international level, family rights and children's rights should be highly concerned and protected. These developments have highly affected the development of activities, classes, and treatment of juvenile.

In Thailand, the Department of Juvenile Observation and Protection (DJOP) has focused on promoting the children's rights and welfare and strengthening family and society institute. DJOP also works on criminal and family cases including governance supervision, rehabilitation, protection, and other assistance services as well as follow up and evaluation of the cases. In 2017, there are 44 Juvenile Observation and Protection Centers, 33 Juvenile Observation and Protection Centers with Remand Home, and 19 Juvenile Vocational Training Centers including eight Special Juvenile Vocational Training Centers. According to the development above, one of DJOP policies is to develop the environment for three types of juvenile correction to be appropriate with the external changes. DJOP would also like to deeply understand the driving force which could encourage juveniles to be ready to get rehabilitation program. This idea is supported by Vimolsiddhi, Butsakorn, and Sivaporn (2011) who confirmed that environment can encourage and prevent human behaviors, especially territoriality, personal space behaviors. The study was conducted by the interdisciplinary team including DJOP staff, design researchers, architects, interior architects, and designers to ensure that every aspect of life in juvenile correctional facilities is clearly understood. Design opportunities were classified and discussed with juvenile, staff in juvenile correctional facilities as well as the management team of DJOP. Finally, the study would suggest the significant factors of environment design to improve the juvenile living quality and enhance the efficiency of rehabilitation program.

The study aimed to classify the stakeholders, such as juvenile, staff, and visitors and understand the factors affecting their behaviors. This study was conducted under the constraints of DJOP policy, treatment procedure of JVTC staff, and the context of use of each correctional facility. Data collection was focused on first-hand data from interview and observation to ensure that real users' requirements were delivered. These requirements were systematically analyzed. Pattern and case study development were the analysis framework for this project.

The study was conducted to understand realities and design opportunities classification. Qualitative research methodology particularly case study was utilized to capture the insights of the participants of the study. Data were gathered from interviews with 10 management team members of the Ministry of Justice and DJOP to understand the future vision and management context such as:

1. Current Situation of Correctional Facilities
2. Policy and Vision of Future Correctional Facilities Development
3. Treatment Procedure Development
4. Policy Problem of Facilities Renovation
5. Sample and Site Identification

Participatory observation was also used as an important tool to understand the life of juveniles in the correctional facilities and context of uses such as the following:

1. User Persona
2. Users Behavior Typology
3. Factors Driving Behavior Change
4. Interaction of Users and Facilities
5. Effect Created by Inappropriate Facilities

Four research assistants were sent to 15 JVTCs and stayed there for 15 days in each JVTC where they conducted interviews with 300 juveniles and 120 staff. .
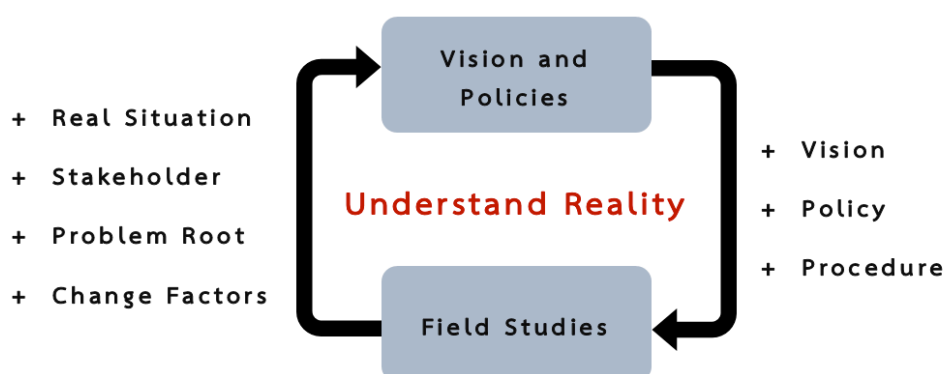
Figure 1. The Framework of Study Process

Each interview and observation was systematically scheduled. The information from each interview and observation could be cross-checked for data confirmation and exploration. All information were analyzed and displayed in various frameworks and models. Patton (1990) used the symbolic interactionism theory, which is emphasized to understand and interpret the process of interaction between people and symbols. This idea was developed to be visualization of diagraming, mapping, and experience map for co-creation workshops with juveniles in selected correctional facilities. The co-creation was arranged in the last week of participatory observation. The research assistants in each site were assigned to conduct the workshop in a casual atmosphere. The workshops were conducted with the small group of juveniles. They were encouraged to express their desires and problems of living in the facilities. The co-creation workshops were focused on characteristic matching and classifying potential

design opportunities of environment encouraging them to be more secure and comfortable, then be ready to involve in provided rehabilitation programs.

Figure 2. Co-creation Workshop with Juveniles in JVTC

However, the facilitators ensured that the ideas and concepts from co-creation workshops with juveniles will be carried to the final design and real facilities. The workshop with the management team of DJOP including the deputy director general, inspection-general, and directors of juvenile vocational training centers were arranged for the following objectives.

1. Data Confirmation
2. Solution Classification
3. Solution Identification

In the workshop, the participants discussed and brainstormed to build the direction of core concept of facility development. These were done to help develop the result, from co-creation workshops with juveniles, to be the core concept of future juvenile correctional facilities design.

Figure 3. Workshop with the Management Team of DJOP

Conclusion

The interview data from the juveniles showed that the changes of social context significantly affected their lifestyle in juvenile correctional facilities. Since traditional education environment has not worked well in the society, probably the traditional rehabilitation programs and activities have not been efficient, too. Most of them reflected that the rehabilitation programs and daily activities inside the facilities are not much different from what they do outside, except the limited space. Most of the facilities provided them the "school environment". It is actually the environment they are trying to escape. One of the juvenile participants gave the example of environment and experience design: the mechanical workshop in the school and correctional facilities deliver big different experience in comparison with a small local garage outside. This could be explained that a small workshop plays symbolic aspect to juveniles (Vimolsiddhi, Butsakorn, & Sivaporn, 2011). The juvenile who is taking care of gardening in one facility mentioned that he does not like gardening at school but gardening at his home is acceptable. He gardens at the facility because he has to stay here. While a group of juveniles in the facility in the central of Thailand are full of willingness to repair the bicycles of staff and community nearby but they have never been happy in the official mechanical workshop class. They mentioned that they already understand all the knowledge taught in the class.

The interviews of staff showed that it would be much better if the environment is designed to support the security system. Many staff mentioned that the children's right is very important even though when juveniles are escaping. Controlling juveniles is much more sensitive than controlling adults. The staff have to enforce very carefully the rules in the facility. In this case, many staff believe that environmental design such as security wall and electric fence can help prevent escapes but these kinds of ideas are in conflict with the concept of children's rights. However, another staff presented the interesting idea to prevent escapes. He mentioned that normally some juveniles decide to escape especially in the first three months. Therefore, he is careful not to pressure this group of juveniles. These juveniles need something to do but it must not in forms of lessons and classes. Many times, he left these juveniles with sport programs on television and in the natural environment. The observation showed that juveniles with television stayed with television as much as they could. They did not interact much with other juveniles but they did not create any problem. On the other hand, juveniles in the natural environment took a few days doing nothing. However, they got gradually involved with the natural environment. They normally start from general tasks such as unconsciously interacting with terrain and moving on to complicated tasks such as farming and gardening. The observation also confirmed that the juveniles who stay in the facilities that mainly provide hardscape got very less idea of activities at their free time compared to the juveniles who stay in the facilities full of green space.

Most of the staff participants agreed that juvenile activities during their free time are very important. Their first three months in the facilities is considered critical time for juveniles. Most of them are still shocked and confused. As newcomers, juveniles, especially teenagers, need to be accepted by the community (Manoch, Thanita, & Nida, 2012). However, in JVTC, if the newcomer does not know some juveniles inside, it is very difficult to get accepted to be a part of the community. Many times they get depressed. If juveniles have "something to do" during their free time, the

tendency of being depressed could be decreased. However, "something to do" in this case, must not be activities or tasks of rehabilitation programs. One of the staff mentioned that the best "something to do" is the activity or task that is created by the juveniles themselves. His personal observation confirmed that natural environment provides much higher performance to encourage juveniles to have their own activity than school environment. In addition, it is still important that natural space should be clean and clear. Clear environment could reduce the stress and pressure of staff members who take responsibility for safety and security.

Co-creation workshop also delivered the deep understanding of how they consider the environment. "Think out loud" made researchers understand the reasons behind requirements. A group of juveniles mentioned that their most favorite activity is taking a bath but it is extremely limited. A sporty group also said that normally classes are in the morning and they get free time in the afternoon. In fact, to avoid strong sunlight in the afternoon, they could do outdoor activities just 30-40 minutes in the evening. It is quite clear that juveniles who do not live in the urban area are very good at interacting with natural environment but urban juveniles did not show the benefit of creating free time activities in the school environment.

Juveniles in the co-creation workshop reflected that the size of workshop is very significant to their perception. Normal size of workshop in school or university is too big for them. The smaller one is better to make them feel more comfortable. Dividing space might create an opportunity to add more sub-contents which are better to touch juveniles. They also mentioned that if they could access their workshop after classes, they could do something they love as they are outside.

The learning space should become more inclusive toward activities, staff, and students as well as administrative support staff (Temple, 2014). Workshop with DJOP management team is very important. The result of workshop with management team focused on security and rehabilitation program. Natural environment, such as the depth of pond and the size of shrub, is acceptable but it needs to be under control. The main idea is to design the natural element to support the security system. Most directors reflected worry of smaller workshops because human resources are always a problem of DJOP. However, the idea of "friends teach friends" was mentioned and considered as high potential solution. One JVTC model, bicycle fixing station, was raised as a good example. This JVTC opens a part of workshop for juvenile to fix the bicycle for JVTC staff and community nearby. This idea was confirmed by the observation. Juveniles who worked in the bicycle fixing station are happy to do these unofficial classes and feel that they can also contribute to others.

Focusing on the living in JVTC, activities at free time is very important. DJOP provides variety of courses and classes including special workshops or events for juveniles to attend and learn. However, their qualities are dependent on the performance of the management. Some JVTCs are fully supported by big space and building but the number of staff does not meet the standard. That is why they cannot operate classes well. Most juveniles in JVTC have got more free time but there is not much to do. Leksomboon (2012) recommended to start from questioning which relies on community. Helsinki Design Lab is an example of how design can solve problems in big cities through simple questions such as how to create a recreational space for elder people and children in snow town. This case study gave the idea of simple

questioning is there "something to do" during free time? The analysis strongly recommended that natural environment can fully support this idea. Juvenile can be more relaxed when they are surrounded by nature. The observation showed that the participants naturally interacted with nature such as a part of tree or water in a pond. Moreover, some of them created more complicated tasks such as sport, game, farming, and gardening. Once they have more interactions with the space, the sense of belonging will be developed. As to the public space such as school or JVTC, developing sense of belonging is very important. Sense of belonging does not only benefit taking care of space but it can also make juveniles feel comfortable at the places.

The interview with management team of DJOP showed that all of JVTCs have been designed by traditional concept. The reference is educational environment. In fact, most juveniles in JVTC are students who do not leave school. Architects might carry this idea to be a part of their researches. "What are their everyday activities outside?" is an interesting question to ask to begin with. They might not want to go to school but it is just six to eight hours per day. In JVTC, juveniles have to spend 24 hours in it. The environment would consider space and atmosphere of everyday activities for them. This idea might explain the reason why they prefer small workshops for their bicycle fixing station rather than the big workshop provided by JVTC. The everyday activities in free time could make juvenile enjoy. DJOP and JVTC can benefit from this insight to design the program and environment to help juveniles to assimilate to rehabilitation program and rules of JVTC.

Based on the results of the study, "something to do" is considered as important tool to make juvenile lively at JVTC. Traditionally, JVTC has been designed under the concept of educational environment. The ideas of natural environment and everyday activities could be taken into consideration of concept generation. Although JVTC provides very good rehabilitation program for juveniles, it will not be beneficial if juveniles are not comfortable and willing to learn. Environment is actually powerful to drive human behavior. "Something to do" would be a good strategy to encourage juveniles to actively interact with their environment, other juveniles, and staff. These interactions can smoothly bring them into the small community in JVTC.

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Characteristics of Environment Encouraging Elder-Teenager Cooperation in Rural Community

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Abstract

Nowadays, local wisdom plays an important role in community development. One month of participant observation in Na-Ngoi – Phonplaloh, a rural community which is 650 kilometers from Bangkok, Thailand, shows that elders are full of passion in contributing craft wisdom to teenagers; however, teenagers have no willingness to learn. Making everyday products at semi-outdoor space around the house is in contrast with chilling out with friends and using smart phone at the town's café. The mapping of the elders' and teenagers' daily lives reveals that the teenagers are inclined in virtual activities. The teenagers are full of passion to connect to the world and extremely different from elders who prefer being in their comfort zone. Also, the mapping shows evidence of probable cross-generational cooperation. Craft is necessary although we are surrounded by technologies, and online activities cause addiction among teenagers. These reasons underscore the idea of startup project to value craft for tomorrow. Hence, the environment encouraging teenager-elder cooperation must be carefully identified. The study suggests four keys to develop the environment successfully: 1) flexible space, 2) visible craft, 3) leisure activities, and 4) connection. With emphasis on personal context, the space should not be limited by location. Elders could stay in their place for crafting while teenagers could travel around and connect to elders, craft products and world. Crafts would be visible in some places where everyone could explore them easily, and daily leisure could be flexible according to lifestyles. These make the space more dynamic and highly adaptable for changes.

Keywords: Community development, cross-generation cooperation, local wisdom, knowledge transfer

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Introduction

Thailand is now an aging society. Thai government is currently encouraging studies of this issue including social and economic aspects. The National Elderly Plan Issue 2 emphasizes social participation and self-actualization with surrounding people and participation in public activities. This conforms to The Eleventh National Economic and Social Development Plan (2012 - 2016) emphasizing preservation of local wisdom, which is a valuable social capital to encourage stability of national economy and society. The School of Architecture and Design (SoA+D) of King Mongkut's University of Technology (KMUTT) has been involved in community development project in Na-Ngoi – Phonplaloh for four years. Na-Ngoi – Phonplaloh could be considered as a rural community in Sakol Nakorn province, 650 kilometers from Bangkok, Thailand. People in the community basically do farming. In the past, Na-Ngoi – Phonplaloh was recognized as the famous community producing high quality of blooms. However, producing blooms is no longer the community's main economic activity.

From the 4-year experience in the community, it has been found that elders are the key persons to keep local wisdom and knowledge. However, there is just a limited knowledge transferred to young people and teenagers, according to the global trend that focuses on the unique experience including product or service which is applied from local wisdom. So, the idea to develop environment for knowledge transfer between elder and teenagers could possibly be a community's brand-new program. Thai government has encouraged communities to express themselves internationally. They encourage people to go back to their hometown and develop local business from what they actually are and what they actually have. That is why local wisdom plays an important role for today.

Na-Ngoi – Phonplaloh is like other communities in developing countries that have been attracted by globalization. Teenagers in the community would like to spend their time in the urban city. They love to meet their friends in restaurants and coffee shops downtown. When they have leisure time in the community, they always spend time on social media. Face to face interaction has significantly decreased.

From the primary observation, there is not much interaction between three generations, elders, adult, and teenagers because each generation has its own interests and activities. This is why there is limited knowledge transferred between generations. As the values of local wisdoms today, it would be much beneficial if they can collaborate by using elders' local wisdom to generate future opportunities. Since adults have been taking care of family financial status, elders and teenagers would be fit to start taking benefits from applying local wisdom.

On the other hand, local wisdom is very important in terms of social and cultural development. Local wisdom needs to be developed to properly fit to today's culture. Na-Ngoi – Phonplaloh might be in this situation. Local wisdom such as craft has not been much developed while it is interesting for others including the teenagers in the community.   Transferring valuable knowledge of elders is one development opportunity that is consistent with The Eleventh National Economic and Social Development Plan (2012 - 2016). It refers to human development for the sustainability of lifelong learning strategy. There are many kinds of community's

local wisdoms including agriculture, Thai traditional medicine, craft and culture, and food. The methodology of local wisdom transfer widely used is 'demonstration method' by self-practice from real experience (Seni Wong Na Ayutthaya & Teerayuth, 2013). However, teenagers actually know that local wisdom could be applied to benefit their lives. They do not know how to get such kind of wisdom and translate it into business opportunities.

Considering why elders would like to spend time on the basement of their houses, why adult would love to sit and chit-chat in local coffee shop or restaurant, and why teenagers love to kill time in the coffee shop, these spaces are their comfort zones. Each space would have its own characters to invite each generation to involve. It would be possible to design or create the space or place that people can join and interact. However, adults get less potential to join due to the responsibility on family finance. Elders and teenagers are considered to be a good match. It would be much beneficial to teenagers to utilize local wisdom transferred from elders. The environment encouraging elders and teenagers to collaborate would be approached. This study aims to understand 1) people's lifestyles and existing collaboration between elders and teenagers, 2) the existing characteristic of space encouraging elders to collaborate with teenagers, and 3) the relationship of human factors affecting knowledge transfer.
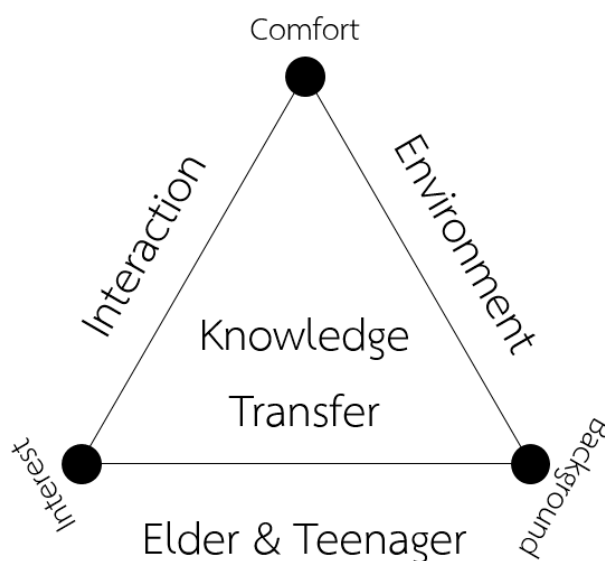
Figure 1. The Conceptual Framework

Thammasatien, Sortakul, Leksombul, and Panichkul (2012) presented the case study in Finland, Helsinki Design Lab which starts with the simple questions such as how to create a recreational space for elder people and children in snow town. This is a very simple question but it is a relevant question. Therefore, the study was conducted to understand lifestyles of elders and teenagers and also the reason of their existing collaboration. This study focused on the criteria of social and cultural context of community. Participatory observation was selected to be the key data collection tool. It was to ensure that the solution proposed in this study would be potentially developed in the community. The hypothesis was developed and tested in the real context.

Barker and Schoggen (1973) mentioned that ecological psychologists also give priority to specify the behavioral boundary of participating place, object, and time. The study focused on social interactions of "elders and teenagers" and "environment and object". Interview and participatory observations were selected as data collection tools. However, the solution developed during the data analysis was built and tested in the real context in the community.

Getting to know. At the first phase of participatory observation, researcher spent two weeks in the community to understand the reality of existing collaboration of elders and teenagers. The purposes of this collection are 1) current situation analysis, 2) general interaction between generations, and 3) onsite study of favorite places of elders and teenagers. A researcher was assigned to select the place that elders and teenagers normally love to be. The behaviors and the frequency of use of the elders and teenagers in those places were recorded. Elders and teenagers were interviewed on their reasons to be in those places, such as atmosphere, activities, conversations, people, and special purposes. The general characteristics of places and special characters creating special purposes were recorded as well.

Getting deeper. The second phase of data collection was scheduled two months after the first phase. Two researchers were assigned to interview and observe elders and teenagers doing their favorite activities in the community. Eight elders and six teenagers were interviewed in depth at their places for better understanding on their 1) motivation to be in the places, and 2) human-environment interactions. During interviews, elders and teenagers were requested to explain their activities, objects, and environment related to activities. Researchers also focused on their perception of their activities and the places.

Getting real. The suggestion from the analysis was applied to be the solution such as prototypes and processes. The solution was explained to selected elders and teenagers in the community. Those elders and teenagers were invited to try the solution at the prepared environment and situation. All activities and interactions were systematically recorded. In-depth interview played an important role to understand their perception to the solution. Elders and teenagers were encouraged to give their feedback, opinions, and recommendations to develop the solution.

Conclusion

At the first phase of data collection, researchers spent two weeks in the community. Site survey and stakeholders' demonstration were used in order to interact with people, especially elders and teenagers. A group of teenagers mentioned that there is a new small coffee shop located in a kilometer from the community. They are very excited. It is good a sign because this coffee shop is a small branch of the one in a big city. In fact, this coffee shop is very small, and coffee is not the main product of this branch. However, this situation confirmed that teenagers do not only want to go outside the community. Leksomboon (2012) also gives value to question the community development project such as "how to make students know the temple and school in the community". If the community has enough proper space for them, they can also spend time in the community. At the same time, elders still prefer to have coffee at the local coffee shop in the community and go back to do leisure at the basement of their houses.

Convenience store could be considered as the most popular place in the community. It is not only popular for teenagers but also for adults. However, there are not many elders at this convenience store. This is a 24-hour store. The interesting point is that teenagers and some adults spend their time in front of the store. One teenager said that being here is easily recognized by the people passing by. Many of them meet and interact with their friends here.

On the contrary, elders in this community do not like to go outside their community. They would love to do something in the community, especially at the basement of their houses. Basement could be considered as semi-public space for rural communities in Thailand. In this community, many leisures, everyday crafting, chitchatting, resting, and working were done at the basement. Elders group and do the same activities in one place. For example, A's house basement is for weaving. Elders who weave can enjoy weaving together. In some activities, they can share their tools and equipment. For the group that does crafts together as business , they can share cost of materials.

In-depth interview showed that elders in this community normally do crafting during the day. What they craft are everyday products such as textile products, woven products, and wood products. Sometimes, they make new ones and sometimes they fix old or broken ones. The participants of this study revealed that crafts they produce are not valuable enough to sell to others. They also mentioned that teenagers have not been interested in crafts much because it is too difficult for this generation. However, most of them try to teach their family members but the members are not interested to continue. A teenager pointed out that many times she has tried to start learning crafting. However, after two days, she was very bored. Her opinion is that elders can easily sit and do crafting with their friends because they do it together. She thought that it would be easier if her friends can sit and learn crafting together with her.

Both elders and teenagers mentioned that people in the community do not pay attention to this local wisdom much because they do not see much value in such everyday traditional products. Comparing to textile, the craft that is always saleable, everyday product is much cheaper than textile products. Therefore, some teenagers think that instead of weaving baskets used at home, for a day, buying a 50 baht plastic basket is much easier. Teenagers did not recognize other reasons such as the value and aesthetics of local wisdom. These groups of teenagers consider the potential of functional benefit more than emotional benefit.

In teenagers' opinion, most of them do not think that they can sit with elders the whole day. They do not love to work in the community. They have not seen any benefit to sit in one place although it is a nice place. At the same time, elders do not want to teach teenagers as teachers teaching in the class. The ultimate goal of elders is that what they do is beneficial to teenagers in some ways. It is acceptable for them if teenagers do not craft but they can sell craft products. The benefit of crafting for elders is to create, and the benefit for teenagers is to sell. Teenagers mentioned the potential to do online shop for their community's crafts. They observed that their parents always take the crafts to sell in craft fair in Bangkok and big cities in Thailand. They thought that online shop should be open 24 hours. They said that they have found a lot of online shops on social media. One of them helped a friend to promote her products on her social media. It is good to know how a teenager gets

clients into her list and how to do online marketing. Craft is the most common local wisdom in the community but it is not interesting for teenagers. However, it is very interesting when the values of crafts of elders and teenagers are considered. They value it differently. Elders focus on making but teenagers focus on selling. In terms of business, they are a good match. The idea of a start-up project was raised during the data analysis.

The start-up idea was explained to one of the teachers who is almost 60 years old in a local school. She agreed with the start-up concept. She also mentioned that students nowadays have been invited by others to promote their products on social media. In her opinion, it is very dangerous because students have not studied the products they are promoting. Some products are not really good and many products do not reach the standard of the Ministry of Industry. However, she has seen this interest in her students.
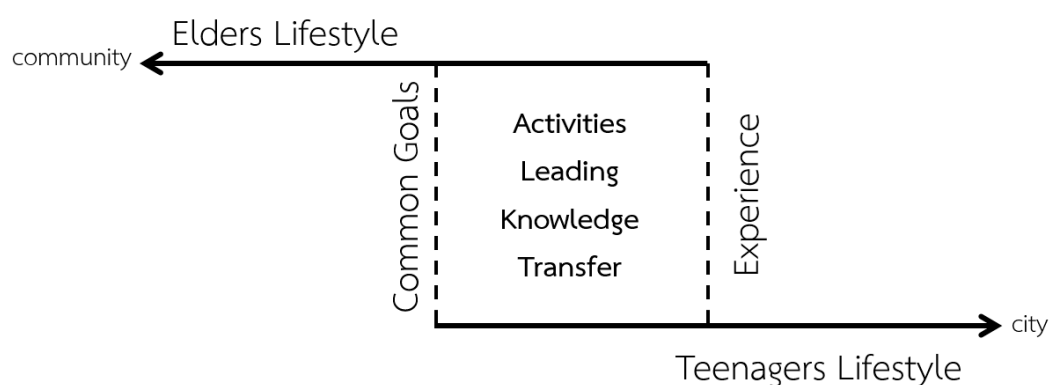
Figure 2. The Framework of Space Design Concept

The trial project called "craft for tomorrow" was presented to a local school. The purpose of this process is to use the case study as a tool to let people in the community identify the kind of space they want. Whyte (as cited in Project for Public Space, 2015) stated that it is very hard to design the right space; it seems that almost all current public spaces were designed for aesthetic approach but not for functional approach. With this project, students need to collaborate with elders and they have to carefully plan for elders also. Students were given the basic knowledge of start-up project and the big picture of online business. Students were encouraged to set the team and contact the elders by themselves. It is very interesting that students have not occupied any specific space or area. They identified that the proper environment for elders to craft is their homes or their friends' homes. They presented the idea that (if it is possible) they need to know all crafts that elders have done. Finally, they requested data signal for their communication. In this case, the environment encouraging teenager-elder cooperation must be carefully identified. The study suggested four key success indicators to develop an environment: 1) flexible space, 2) visible craft, 3) leisure activities, and 4) connection. With emphasis on the personal context, the space should not be limited by location. This may make the space more dynamic and highly adaptable for changes.

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The Financial of Subsidiaries of State-owned Enterprises in Corruption in Indonesia

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Abstract

Indonesia restructures State-Owned Enterprises (SOEs) in the form of a holding company through Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 on the Procedures of Participation and Administration of state capital in State-Owned Enterprises and Limited Liability Companies. This caused controversy. It is stipulated that the Subsidiaries of State-Owned Enterprises shall be treated in the same way as State-Owned Enterprises in performing public services or obtaining specific policies from the state, including natural resource management with certain treatment as applied to SOEs. This equality of treatment opens the possibility of equal treatment in terms of accountability between SOEs finances and Subsidiaries of State-Owned Enterprises finances. The problem is, whether the act against the law by the Board of Directors of a Subsidiaries of State-Owned Enterprises that causes losses to a Subsidiaries of State-Owned Enterprises is a criminal act of corruption. The method of writing is normative. State finances in the explanation of Law Number 31 of 1999 in conjunction with Law Number 20 of 2001 on Corruption Eradication constitute all state assets arising from being in the control, management, and accountability of SOEs. Whereas the juridical between SOEs and Subsidiaries of State-Owned Enterprises is 2 (two) independent limited liability companies which have their own corporate organs as regulated in Law Number 40 of 2007 on Limited Liability Company so that the unlawful acts committed by the Board of Directors of Subsidiaries of State-Owned Enterprises Causing corporate losses is not a criminal act of corruption.

Keywords: Subsidiaries, State-Owned Enterprises, Corruption, Indonesia.

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I. Introduction

In order to optimize the performance and make the structure of State-Owned Enterprises (SOEs) better, the government of Indonesia held a program to improve the system of SOEs. It aims to make improvements with the reform of SOEs. Indonesia restructured SOEs through Government Regulation Number. 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 concerning Procedures for the Participation and Administration of state capital in State-Owned Enterprises and Limited Liability Companies. Under this provision, the restructuring of SOEs is done by strengthening the institutions and working mechanisms of SOEs as well as improving the administrative order through the improvement of the administration process. Strengthening the institutional and working mechanisms of SOEs is done, among others, through the establishment of a holding company of SOEs. [1]

In the restructuring program, one of the main focus of the Ministry of SOEs in the framework of SOEs development is through the rightsizing program. SOEs rightsizing program is the main program of SOEs restructuring / restructuring program with more sharp mapping, and regrouping / consolidation, to reach the ideal amount and scale of SOEs business.[2] The guidelines of rightsizing are fixed on Article 33 of the Indonesia Constitution 1945 as the basis for policy making in the economic field. SOEs business or product / service is included in the category "concerning the livelihood of the people" as referred to in Article 33 of the Indonesia Constitution 1945. This implies that the state must retain majority ownership of the SOEs.[3] On the other hand, SOEs that do not belong to the category "concern the livelihood of the public" in the business or product / service sectors, the ownership of the state may be considered not majority or even divested. This is particularly the case for the state-owned sector which assumes that the state no longer needs to participate in the business sector. [4] In this case the holding form is one form of rightsizing interesting to discuss further. Holding is a form of business in which there is a holding company which controls or has subsidiaries of the same type of business. This company owner which is called holding and the subsidiary of holding company is an extension of the company owner.

If it has reviewed at the terms of economic unity, then the company to be held is not a problem of the relationship between the subsidiary of holding company and the holding company. However, juridically, Law Number 40 of 2007 on Limited Liability Company does not recognize the term so that it can be said that the holding company and subsidiary of holding company are independent legal subjects. [5] Therefore, according to the provisions of the Law Number 40 of 2007 on Limited Liability Company, the position of the state is not changed, the state is the majority

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[1] Further see Explanation umun Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 on Procedures for Investments and Administration of the state capital in SOEs and Company Limited.

[2] Kementerian BUMN. *Master Plan* Kementerian BUMN 2004-2014, page. 80

[3] *Ibid*

[4] *Ibid*

[5] Sulistiowati, *Aspek hukum dan Realitas Bisnis Perusahaan Grup di Indonesia* (Jakarta: Erlangga, 2010) page. 19

shareholder of SOEs[6] and SOEs is the majority shareholder of the SOEs Subsidiaries[7]. This means that the state is not acting as a shareholder of SOEs Subsidiaries.

Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 on the Procedures of Participation and Administration of state capital in SOEs and Limited Liability Companies resulted a legal debate. The Government through the Government Regulation equates the treatment between the SOEs and the subsidiary of the SOEs in certain respects.

Article 2A paragraph (7) states:

> "Subsidiaries of SOEs shall be treated in the same way as SOES for the purpose of obtaining Government assignments or performing public services and / or obtaining specific policies of the State and / or Government, including in the management of natural resources with certain treatment as applied to SOEs".

Based on these provisions, it is stated that the Subsidiaries of SOEs are treated the same as the SOEs. This equality of treatment opens the possibility of equal treatment in terms of financial accountability of SOEs and Subsidiaries of SOEs. In the explanation of Article 2A paragraph (7) it is also stated that which is included in the same treatment in the specific policies of the state and / or Government, among others:

1. Related to the process and form of permit;
2. Right to acquire management rights;
3. Land expansion activities; And / or
4. Participation in activities of statehood or government involvement involving SOEs.

The phrase "among others" is contained in the general explanation of Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 concerning Procedure of Inclusion and Administration of State Capital in SOEs and Limited Liability Companies. Opening up opportunities for equal treatment in other matters for subsidiaries of SOEs such as the financial accountability of subsidiaries of SOEs in the context of corruption.

State finance in general explanation of Law Number 31 of 1999 in conjunction with 20 of 2001 on on Corruption Eradication representing all of state asset that

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[6] Indonesia, Law - State Owned Enterprises Act, Act No. 19 of 2003, article 1 point 2 states that "Limited Liability Company, hereinafter referred Limited, is a state-owned limited liability company whose capital is divided into shares of all or at least 51% (fifty one percent) of its shares owned by the Republic of Indonesia with the main objective of profit".
[7] Indonesia, Regulation of the Minister of State Enterprises Number. PER-03 / MBU / 2012 of 2012 on Guidelines for Appointment of Members of the Board of Directors and Board of Commissioners Subsidiary State-Owned Enterprises, Article 1 paragraph 2, states that "the Son of state-owned company is a limited liability company that is mostly owned by the state or a limited liability company controlled by the state".

arise because is in controlling, handling, and accountability of SOEs.[8] With the provision of Government Regulation of Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 concerning Procedure of Inclusion and Administration of State Capital in SOEs and Limited Liability Companies, the finance of Subsidiaries of SOEs can also be equalized with the finance of SOEs based on Law Number 31 of 1999 in conjunction with 20 of 2001 on on Corruption Eradication so that the financial loss of Subsidiaries of SOEs can also be categorized as state financial losses as stated in Article 2 paragraph (1) and Article 3 in Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication.

In practice, if a subsidiary company in the conduct of such business commits an act against the law causing a loss of the company, it resulted the question of whether the act is a criminal act of corruption or not. The focus of the problem in this paper is to see whether the unlawful acts committed by the Board of Directors of Subsidiaries of SOEs that cause losses of the company is a criminal act of corruption. The method in this writing is the normative juridical by reviewing the legislation related to the topic of discussion.

II. Soes and Its Arrangements in Indonesia

The concept of a welfare state is a country whose government guarantees the implementation of people's welfare. This is in accordance with the basic idea of the purpose of the state in the Preamble of the Indonesian Constitution 1945, which states that the purpose of the state is to promote the general welfare or in other formulation to bring about social justice for all Indonesian people.[9] Related to efforts in achieving the state's goal for the welfare of the people, according to W. Friedman, the state should normally act in 3 (three) general dimensions:[10]

1. The State acts as a regulator *(de stuurende)* that controls or drives an economy in which the state acts as a Jury;
2. The State acts as a provider *(de presterende)* moreover in a country which philosophizes as a welfare state;
3. The State acts as an entrepreneur.

SOEs are formed as a manifestation of efforts to achieve the government's goal to prosper the people.[11] The existence of SOEs as one of the pillars of the Indonesian economy, in addition to the existence of private business entities and cooperatives is based on the Indonesian Constitution 1945. State involvement in such activities is basically a reflection of the substance of Article 33 of the Indonesian Constitution 1945, which among others states that:

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[8] Further see General Explanation of Act No. 31 of 1999 in conjunction with Law Number 20 of 2001 on Corruption Eradication.

[9] Ridwan HR, *Hukum Administrasi Negara* (Jakarta: RajaGrafindo Persada, 2006) page. 15-16.

[10] Gunarto Suhardi, *Revitalisasi BUMN* (Yogyakarta: penerbit Universitas Atma Jaya Yogyakarta, 2007) page. 1.

[11] *Ibid*

"The branches of production that are important to the state and which affect the livelihood of the people are controlled by the state and used for the greatest prosperity of the people".

Based on that, the existence of the SOEs is a mandate and consequence of the constitution, which is important things or branches of production that are important and controlling the livelihood of the people controlled by the state.[12] **Definition of SOEs according to Article 1 number (1) of Law Number 19 of 2003 on State Owned Enterprises, namely**:

"Business entities wholly or substantially all of whose capital is owned by the state through direct participation derived from separated state assets".

SOEs here include *Persero* and Public Corporation *(Perum)* as well as other Limited Liability Company.[13]

Capital owned by the government is then realized in the form of shares of the company, where the SOEs government owns 51% of shares of SOEs so that makes the government as the controlling shareholder.[14] In his book 'The Company Law', Stephen W. Mayson, Derek French, and Christopher Ryan declare that a company is said to be a controlling shareholder of another company if it owns more than half of the total nominal value of shares issued by another company, Or if the company has the authority to determine the composition of the Board of Directors of another company. [15]

SOEs activities must be in accordance with the purpose and purpose and not contrary to the laws and regulations, public order, and / or morality. In Law Number 19 of 2003 on State-Owned Enterprises, the forms of SOEs are divided into:

1. *Persero*
    Article 1 number 2 states:
    Persero, is a state-owned enterprise in the form of a limited liability company whose capital is divided into shares wholly or at least 51% (fifty one percent) of whose shares are owned by the Republic of Indonesia whose main purpose is to pursue profits. The organs of the Persero are GMS, Board of Directors and Commissioners.
2. *Perum*
    Perum, is a SOEs wholly owned by the state and is not divided into shares, the purpose for public benefit in the form of providing goods / or services of high quality and simultaneously to pursue profits based on the principles of

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[12] Munir Fuady, *Pengantar Hukum Bisnis Menata Bisnis Modern di Era global*, (Bandung: PT Citra Aditya Bakti,2005), page. 45.
Further see Article 33 paragraph (3) of Indonesian Constitution 1945.
[13] Mulhadi, *Hukum Perusahaan Bentuk-Bentuk Badan Usaha di Indonesia,*(Bogor : Ghalia Indonesia, 2010), page. 151.
[14] Indonesia, Law - Law On State-Owned Enterprises, Law No. 19 of 2003, Article. 1 point 2 states that "Limited Liability Company, hereinafter referred Limited, is a state-owned limited liability company whose capital is divided into shares of all or at least 51% (fifty one percent) of its shares owned by the Republic of Indonesia with the main objective of profit".
[15] Stephen W. Mayson, Derek French dan Christoper Ryan, *Company Law,* sixth edition (London: Blackstone Press Limited, 1989) page. 28.

corporate management. Basically the process of establishing *Perum* is the same as *Persero*. The organs of a *Perum* are Ministers, Directors, and Board of Trustees.

III. The Position and Settlement of Subsidiaries of Soes on Soes

SOEs management is still reaping losses in some areas so that social welfare that became the goal of SOEs can not be met optimally. Limitations of resources, SOEs functions either as a pioneer or as a balancing of large private power are also not fully implemented.[16] When the structurally private sector is no longer an extras of welfare, the nation began to be heavily influenced by private production activities.[17] Several factors causing the management of most SOEs are inefficient, so that they suffer losses and become the financial burden of the state, among others, is the legal status and the structure of the SOEs organization. In such case, it is not clear whether SOEs is an economic actor which has full autonomy or only as executor or part of the organizational structure of a department.[18]

SOEs rightsizing program is the main program of SOEs restructuring with more sharp mapping, and regrouping / consolidation, to reach the ideal amount and scale of SOEs business.[19]

In his book 'Mergers, Acquistitions, and Corporate Restructurings', Patrick A Gaughan states:[20]

> "Rather than a merger or an acquisition, the acquirings company may choose to purchase a portion of the target's stock and act like a holding company, which is a company that owns sufficient stock to have to have controlling interest in the target".

The definition of a subsidiary of a SOEs Company is contained in the Regulation of the Minister of State-Owned Enterprises Number PER-03 / MBU / 2012 of 2012 on Guidelines for Appointment of Members of the Board of Directors and Members of the Board of Commissioners of Subsidiaries of State-Owned Enterprises. In Article 1 number (2) states that:

> "Subsidiary of SOEs is a limited liability company mostly owned by SOEs or limited liability company controlled by SOEs".

The existence of Holding Company refers to the business reality of the incorporation of companies that are under the control of the holding company. The corporate parent acts as the central leader, directing the subsidiary's business

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[16] Effendi Choiri, *Privatisasi versus Neo Sosialisme* (Jakarta; LPES, 2003), page. 27-28.

[17] Pandji Anoraga, *BUMN Swasta dan Koperasi Tiga Pelaku Ekonomi*, (Jakarta: PT Dunia Pustaka Jaya, 1995) page. 114.

[18] Marwah M. Diah, *Restrukturisasi BUMN di Indonesia*, (Jakarta: Literata Lintas Media, 2003), page. 11.

[19] Kementerian BUMN. *Op.Cit*, page. 80.

[20] Patrick A. Gaughan, *Megers, Acquistions, and Corporate Restructurings*, (Canada: Jhon Willey & Sons, Inc, 2002), page. 18.

activities to support the economic interests of the Holding Company as an economic unity. [21]

The legal relationship arising between the holding company and subsidiary is the relationship between shareholders.[22] In Law Number 40 of 2007 on Limited Liability Company is not mentioned in detail about understanding and arrangement about holding company. As a result of the absence of any arrangements specifically addressing the holding arrangements will have an impact on the rights and obligations between subsidiaries and the holding company. The implication is that a company can be controlled by another company, although it has status as an independent legal subject.[23]

IV. Loss of Country Damages in Corruption of Criminal Act

Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication, one of the elements to be categorized as an act of corruption is the element of "harm the State's finances". This is as stated in Article 2 paragraph (1) and Article 3 of the Anti-Corruption Eradication Act.

Article 2 paragraph (1) states:

> "Every person unlawfully commits an act of enrichment of himself or another person or a corporation that may harm the state's finances or the economy of the state, is liable to a life imprisonment or imprisonment of a minimum of 4 (four) years and a maximum of 20 (twenty) Years and a fine of at least Rp 200,000,000 (two hundred million rupiahs) and a maximum of Rp 1,000,000,000 (one billion rupiah) ".

> Article 3 states:
> "Any person who, in the interests of himself or another person or a corporation, misuses the authority, opportunity or means available to him because of a position or position which could harm the State's finances or the economy of the state, is liable to a life imprisonment or imprisonment of at least 1 (One) year and a maximum of 20 (twenty) years and or a fine of at least Rp 50,000,000, - (fifty million rupiah) and at the most Rp 1,000,000,000.00 (one billion rupiah) ".

Understanding "harm the state finances" has developed in its application. This is inseparable from the rules relating to the understanding of state finances.

General Elucidation of Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication states that what is meant by state finance are:

  a. "All state assets in any form, separated or undivided, including all parts of the property of the state and all rights and obligations arising out of:

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[21] Sulistiowati, *Op.Cit,* page. 19.
[22] *Ibid,* page. 96.
[23] *Ibid*, page. 32.

Is in the control, administration, and accountability of State officials, both at the central and regional levels

b. In the possession, control and accountability of State-Owned Enterprises / Regional Owned Enterprises, foundations, legal entities, and companies that include state capital, or companies that include third party capital under an agreement with the State. "

If it refers to the definition of the above provisions, SOEs will suffer losses and comply with the elements contained in Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication. Directors of SOEs may be held accountable in the realm of corruption.

The term "state finance" does not only exist in corruption only. The term of state finance is also found in many legislation - the legislation, among others, as follows:

1. Law Number 17 of 2003 on State Finance.
   Under this provision, as contained in Article 1 Paragraph (1) is meant by state finances namely:
   "All rights and obligations of the state which can be judged by money, as well as everything in the form of money or in the form of goods which may be the property of the state in connection with the exercise of such rights and obligations."
2. Law Number 15 Year 2006 concerning State Audit Board.
   Under this provision, as provided for in Article 1 Paragraph (7) referred to as state finances, namely:
   "All rights and obligations of the state which can be judged by money, as well as everything in the form of money or in the form of goods which may be the property of the state due to the exercise of such rights and obligations."

In addition, there is also a Constitutional Court Decision Number 62 / PUU-XI / 2013 concerning the judicial review of Law Number 17 of 2003 on State Finance in which the applicant states Article 2 letter (g) and (i) the law is contrary to Article 23 paragraph (1), Article 28C paragraph (2) and Article 28D paragraph (1) of the 1945 Constitution and have no binding legal force along the phrase "including wealth separated from state / regional companies" and the phrase "the wealth of other parties obtained by Using the facilities provided by the government. "Upon the request, the Constitutional Court rejected all the tests being examined.

V. Dynamics of Financial Loss of Subsidiaries of Soes in Corruption of Criminal in Indonesia

The development of law in Indonesia shows interesting phenomenon related to the handling of corruption bodies of SOEs. Firstly many directors of SOEs are brought to court with charges of committing a criminal act, due to the loss of SOEs. Losses are matched as "state losses".

The second phenomenon, against the indictment and prosecution of the Public Prosecutor (Prosecutor) to them in court, arises a different verdict from a number of Panel of Judges. The verdict differs because of differences in views

among judges in interpreting the article "harming state finance". The judges differed on whether the defendant's actions were harmful to the financial condition of SOEs or not and whether the finance of SOEs belonged to the state finance or not.

For example, the emergence of two contradictory decisions from the panel of judges at the South Jakarta District Court, between the verdict of Ahmad Djunadi (former President Director of Jamsostek Ltd) and Andy Rachman Alamsyah (Investment Director of Jamsostek Ltd) with Omay Komar Wiraatmadja (President Director of Pupuk Kaltim Ltd). Ahmad Djunaidi and Andy Rachman Alamsyah were found guilty of 8 (eight) years imprisonment[24], while Omay Komar Wiraatmadja was acquitted.[25]

The above example shows a sharp interpretation of the differences between judges on the meaning of "state losses" and "whether the financial management of SOEs is included in the financial sphere of the country or not.

Amid the debates mentioned above, in its development, law enforcement officers use the article in the Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication to investigate and investigate the losses suffered by the SOEs Subsidiaries. This has occurred prior to the issuance of Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 on the Procedures of Participation and Administration of state capital in State-Owned Enterprises and Limited Liability Companies concerning Procedure of Inclusion and Administration of State Capital in State-Owned Enterprises and Limited Liability Company. In this paper, will be raised allegations of corruption committed by a subsidiary of State-Owned Enterprise namely Corruption Crimes by PT Patra Niaga (a subsidiary of SOEs (Pertamina Ltd)).

This case originated from the cooperation contract of transportation services and handling of fuel oil for Kalimantan region. Patra Niaga Ltd cooperates with HL Ltd and REI Ltd for Tepi Ltd. Furthermore, Patra Ltd filed a budget of Rp 72.15 billion to Pertamina Ltd for payment to REI Ltd. The funds were eventually disbursed, except that the Rp 72.15 billion fund was not paid by Patra Niaga Ltd. Patra Niaga Ltd is suspected of making fictitious payments for the transportation and handling fuel oil to REI Ltd. As a result of these fictitious payments, the state is allegedly harmed billions of rupiah. Until now the case is still under investigation by the Attorney General of the Republic of Indonesia.

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[24] Further see the decision No. 2434 / Pid.B / 2005 / PN.Jaksel April 19, 2006, the South Jakarta District Court judges consisting of Sutjaho Padmo W., SH (Chief Judge), H. Wahyono, SH., M. Hum, H. Soedarmadji, SH., M. Hum. issued a ruling include Andy Rachman Alam declare the defendant has been proven legally and convincingly guilty of committing a crime to participate in ongoing corruption and committing corruption.
[25] Further see the decision No. 2123 / Pid.B / 2006 / PN.Jaksel dated 23 February 2007, the South Jakarta District Court judges consisting of Sri Mulyani YUSTINA, SH (Chief Justice), Yohanes Suhadi, SH and Sulthoni, SH., MH issued a ruling, among others Omay defendant stated Drs. K. Wiraatmaja, Ak, not proven legally and convincingly guilty according to law committing corruption collectively - together and continue as charged by the public prosecutor on the primary charge or subsidiary.

Based on the case of Patra Niaga Ltd of corruption above, if it is related to the definition of state finance in Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication, it can be described the elements of state finances in the criminal act of corruption, as follows :

1. all state assets of any kind,
2. separated or undivided,
3. including all parts of the nation's wealth and
4. all rights and obligations arising from being in the control, administration, and accountability of State-Owned Enterprises.

The phrase "in the possession, control, and accountability" is described in Law Number 40 of 2007 on Limited Liability Company. In exercising the control, management and accountability of a limited liability company, conducted by the Board of Directors. The Board of Directors is the organ representing the company to represent third parties. This means that legal acts of control, management, and accountability of a subsidiary of SOEs are carried out by the SOEs Subsidiary itself and not by a state-owned enterprise which is a shareholder of a SOEs Subsidiary.

VI. Conclusion

Based on the provisions of the state finances in the explanation of Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication, unlawful acts committed by the Board of Directors of SOE Subsidiaries that inflict losses are not a criminal act of corruption. However, since the enactment of Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 on the Procedures of Participation and Administration of state capital in State-Owned Enterprises and Limited Liability Companies concerning Procedure of Inclusion and Administration of State Capital in State-Owned Enterprises and Limited Liability Company, which equates the treatment between SOEs and SOEs Subsidiaries is not likely to cause confusion for Law enforcement apparatus in viewing the status of SOEs subsidiaries against corruption cases being handled. It also affects the management of SOEs Subsidiaries that are vulnerable to criminalization and are overwhelmed with concerns about making business decisions or corporate actions. As a result, administrators often do not take business decisions quickly, sometimes do not dare to take any decision on business opportunities that exist. This impact is contrary to the purpose of the spirit of holding SOEs, as a driver of the national economy.

The issuance of Government Regulation Number 44 of 2005 in conjunction with Government Regulation Number 72 of 2016 on the Procedures of Participation and Administration of state capital in State-Owned Enterprises and Limited Liability Companies concerning Procedure of Inclusion and Administration of State Capital in State-Owned Enterprises and Limited Liability Company. This resulted in the obscurity of the SOEs Subsidiary as a stand-alone legal entity even though it was within a holding of a SOEs. The enactment of Single Entity Economic Entity in holding state-owned enterprises has only implication on economic aspect not on legal aspect. Holding of SOEs still has its own management and mechanism based on Law Number 40 Year 2007 About Limited Liability Company. This provision seems to provide legitimacy to law enforcement actions that use Law Number 31 of

1999 in conjunction with 20 of 2001 on Corruption Eradication Correct to ensnare Board of Directors of state-owned companies.

To achieve the goal of increasing the value and optimizing the role of SOEs as national development agents in supporting and accelerating government programs, the government should conduct merger or consolidation between SOEs and the existing state-owned companies. The merger or consolidation of companies, especially those with the same core business, makes SOEs and SOEs subsidiaries one subject of the law. Therefore, SOEs may be held accountable under Law Number 31 of 1999 in conjunction with 20 of 2001 on Corruption Eradication.

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Conceptions of Learning English with Synchronous Online Tutoring: A Case Study in Taiwan

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Abstract

With the advent of information and communication technologies (ICT), an increasing number of educational institutions are incorporating Internet tools in their teaching programs. In Taiwan, for example, private tutoring is now being transformed from face-to-face mode into distance mode. The purpose of this study was to explore 74 college students' (around 20 years old) conceptions of learning English and their self-efficacy in learning English in synchronous online program with native English tutors. The research data were gathered from surveys called the Conceptions of Learning English (COLE) and the Academic Self Efficacy (ASE). The COLE survey included the following seven factors, in a hierarchical order: learning English as "Memorizing," "Testing," "Drills & knowledge," "Grammar, "Communication," "Application," and "Understanding & seeing in a new way." The results of the t test analysis indicated that except students' conceptions of learning English as "testing," their conceptions of learning English as "Memorizing, "Drills & knowledge ," "Grammar, " "Communication," "Application," and "Understanding & seeing in a new way" were significantly improved after the online tutoring program. In addition, students' self-efficacy of learning English was also significantly promoted. Finally, some possible explanations for the results were discussed.

Keywords: Conceptions of learning; Online learning; EFL learning

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Introduction

The popularity of information communication technology over the past two decades has brought about the innovative use of the Internet in language learning and teaching, particularly in the area of English as a foreign language (EFL) (Bañados, 2006; Dashtestani, 2014; Miyazoe & Anderson, 2010). Discussion boards, online chat rooms, blogs, social networks, and learning management system have been integrated in EFL learning and teaching materials for English teachers and learners (Aljumah, 2012; Cantor Barragán, 2009; Ferenz, 2005). Obviously, information communication technology (ICT) has changed the language learning environment. Also, the use of computer-mediated communication has made language learning settings more communicative, interactive and student-centered.

In Taiwan, English education has received a lot of attention. However, it still faces the challenge such as the heavy demand of meeting native speakers of English in schools. Synchronous online tutoring provides students with individual instruction and support from native speakers without time and space constraints. The aim of this paper is to explore students' conceptions of learning English and their academic self-efficacy with the use of synchronous online tutoring in Taiwan.

Literature Review

English education in Taiwan

In Taiwan, official English education starts in the third year of primary education. During primary school years, the focus of English education is on increasing the student's interest in English. Students are encouraged to participate in activities such as singing songs and playing games. However, the class size of approximately 30 students always makes it hard for the teacher to interact with the students.

In secondary education, grades are considered the most important part by both the students and their parents because of the entrance exam competition. The overemphasis on the reading and grammar skills of English tends to leave the students with very little time prating listening and speaking skills. Consequently, students have very little confidence in communicating with native speakers of English.

Higher education in Taiwan includes technical college education and ordinary university education. In either education, English is taught in relatively large classes. Technical colleges tend to focus on business or professional English whereas universities tend to focus on the academic side of English. At this point, the students are no longer under the stress of entrance examinations. Rather, the students spend much time and effort in taking EFL (English as a Foreign Language) tests which are required for many job applications. The students see university education as the last chance to improve their English and hence take English courses to obtain certificates which will be useful in job applications.

Despite English education received a lot of attention in Taiwan, it still faces the challenges such as the heavy demand of meeting native speakers of English in school or social contexts to provide exposure to authentic English.

Conceptions of learning

Conceptions of learning refer to a cluster of interrelated beliefs about different aspects of learning or can be described as students' ideas about the nature of learning (Klatter et al, 2001). Research on learner beliefs about language learning is based on the cognitivist assumption that learning attitudes and behaviors are conditioned by a higher order of mental representations concerning the nature of language and language learning (Benson & Lor, 1999). If learners believe that the best way to learn a foreign language is to memorize its component parts, it seems likely that they will hold more positive attitudes towards vocabulary and grammar learning. On the other hand, if learners believe that the best way to learn a foreign language is to immerse themselves in natural contexts and use it, it is likely that they will hold more positive attitudes towards communication with speakers of the language. Although it is generally acknowledge that learners can learn equally well with their own styles and preferences, it is also assumed that certain attitudes may be more enabling than others. Therefore, if language teachers wish to enhance learners' attitudes, they will need to address the underlying conceptions on which they are based.

Research on conceptions of learning originates in the field of educational psychology within a tradition known as 'Student Approaches to Learning' (SAL) (Watkins, 1996). SAL theory begins from the perspective of the learner and recognizes the importance of the content of the learning task and its context. The emphasis on the learner's perspective is reflected in the view that learning should be seen as a qualitative change in a person's way of seeing, experiencing and understanding something in the real world (Marton, Dall'Alba, & Beaty, 1993).

In Marton and Säljö's study (1976), they asked students to read a passage and then interviewed them to find out what they had learned and how they had approached the learning task. Responses were coded into four categories of content and two categories of processing. Since Marton and Säljö (1976), many related studies have found similar ranges of conceptions of learning (Marton, Dall'Alba, & Tse, 1996; Tsai, 2004; Tsai & Kuo, 2008). Summarizing conclusions from earlier studies, Tsai (2004) referred to seven distinct conceptions of learning as:
A. memorizing
B. Preparing for test
C. Calculating and practicing tutoring problems
D. Increases of knowledge
E. Applying
F. Understanding
G. Seeing in a new way

These seven conceptions are assumed to be ordered hierarchically in relation to approaches as well as outcomes of learning. Conceptions A, B and C are described as quantitative and are associated with surface approaches to and less successful outcomes of learning. Conceptions D, E, F and G are described as qualitative and are associated with deep approaches to and more successful outcomes of learning (Prosser, Trigwell, & Taylor, 1994; Purdie & Hattie, 2002). It is generally found that conceptions of learning are related to approaches to learning (Lee, Johanson, & Tsai, 2008) and learning process, and therefore to learning outcomes (Cano, 2005; Tsai, 2004).

Academic self-efficacy

Self-efficacy is a context-specific assessment of competence to perform a specific task, a judgment of one's capabilities to execute specific behaviors in specific situations (Pajares & Miller, 1994). Social Cognitive Theory assumes that a mixing of external social systems and internal self-influence factors can motivate and regulate behavior (Bandura, 2012; Schunk &Parajes, 2002). Self efficacy (SE) is a major part among these internal factors described as "the belief in one's capabilities to organize and execute courses of action required to produce given attainments" (Bandura, 1997, p. 3). It is concluded that self-efficacy is a powerful motivation construct that strongly predicts academic self-beliefs and performances (Pajares, 2002).

In academic settings, SE is frequently described in terms of Academic Self Efficacy (ASE), which reflects students' judgments about their ability to successfully achieve tasks in the academic domain (Elias & MacDonald, 2007). A wealth of literature exists that highlights the importance of ASE for learning and subsequent academic performance. This relationship has been studied in a range of learning settings, including English writing (Pajares, Johnson, & Usher, 2007), Mathematics (Chen, 2003; Hall & Ponton, 2005; Skaalvik, Federici, & Klassen, 2015), Engineering (Ernst, Bowen, & Williams, 2016; Marra, Rodgers, Shen, & Bogue, 2009), Music (Hewitt, 2015; McPherson & McCormick, 2006), language learning (Magogwe & Oliver, 2007), etc. Many researchers have attempted to uncover what distinguishes successful foreign language learners from less successful ones. It has been suggested that SE has a powerful influence on learners' effort and achievement (Zajacova, Lynch, & Espenshade, 2005).

Research questions
The purpose of this study was to explore the use of synchronous online tutoring in a medical college in Taiwan. Students' conceptions of learning English as well as their self-efficacy in learning English were investigated before and after the use of synchronous online tutoring. Specific questions explored in the study include the following:
1. What are the college students' self-efficacy in learning English and conceptions of learning English?
2. Can students significantly improve their self-efficacy in learning English via synchronous online tutoring?
3. Will students' conceptions of learning English be influenced via the use of synchronous online tutoring?

Method

Subjects

The sample included 74 students from a medical college in central Taiwan. Among them were 56 females and 18 male students. Their average age is 20.7. These students participated in the programs of synchronous online tutoring on a voluntary basis for a semester. They took the online course two hours once a week.

Instruments for assessing students' conceptions of learning

A Chinese version of COLE questionnaire developed by Chuang (2015) was administered to assess students' conceptions of learning before and after the experience of online tutoring. A detailed description of the COLE questionnaire seven scales is presented below:

1. Memorizing: Learning English is seen as the memorization of vocabularies or word usages, etc; e.g. Learning English means memorizing new vocabulary and pronunciation rules.
2. Testing: Learning English is to pass the examinations or to get high scores in English tests; e.g. Learning English means getting high scores on examinations.
3. Drills and increasing knowledge: English learning is viewed as lots of exercises and accumulation of English language knowledge; e.g. I think that taking exercises will help me improve my performance in English courses.
4. Grammar: Learning English is perceived as learning grammar rules; e.g. Learning English means knowing a lot of grammar rules.
5. Applying and communication: Learning English means learning how to apply language skills I already have to resolve problems; e.g. Learning English means learning how to apply language skills I already have to resolve problems.
6. Communication with foreigners: Learning English is learning skills necessary to communicate and interact with people from different countries.
7. Understanding and seeing in a new way: English learning is viewed in terms of understanding people from other cultures and getting a new perspective; e.g. Learning English helps me view other cultures and social events in new ways.

The questionnaire consists of bipolar agree and disagree statements on a 7-1 Likert scale. Students' responses were scored as follows: the 'strongly disagree' response was assigned a score of 1, while the 'strongly agree' response was assigned a score of 7. All of these scales were designed to investigate students' conceptions of learning English. The conception of learning in EFL survey contains 4 items for "memorizing" factor (Alpha=0.82), 7 items for "testing" factor (Alpha=0.90), 6 items for "drills and increasing knowledge" factor (Alpha=0.74), 2 items for "grammar" factor (Alpha=0.92), 3 items for "communication with foreigners" factor (Alpha=0.82), 3 items for "application" factor (Alpha=0.77) and 8 items for "understanding & seeing in a new way" factor (Alpha=0.92). In Chuang (2015) version of COLE Survey, the *Drills and practices* factor is combined to *Increasing kn*owledge, and the factors of *Understanding* and *seeing in a new way* were merged into one factor. In addition, two new factors named *Grammar* and *Communication with foreigners* emerged from the factor of *Drills and practices* and the factor of *Application*, respectively. The alpha value of the whole questionnaire is 0.85, and these factors explained 66.68% of the total variance.

The academic self-efficacy survey (ASE) modified by Chuang (2015) contains 9 items. The Cronbach's alpha is 0.95, and it explained 73.34% of the total variance. Therefore, the survey could be viewed as a valid instrument sufficiently examining learners' academic self-efficacy. A sample item was, "When I take English courses, I am confident that I can perform well on any tasks."

Results

Students' mean scores on the two surveys

Table 1 presents students' average total scores and standard deviations on the self-efficacy and seven subscales in the COLE. In the self-efficacy scale, students' mean score was 4.49, which was above the value of 3.5, the mean of 1-7 likert scale. These students, on average show high self-efficacy in learning English. In the COLE scale, students scored highest on the Understanding & Seeing in a new way subscale (an average of 4.85 per item) and followed by the Grammar subscale (an average of 4.84 per item), the Application subscale (an average of 4.80 per item), and the Communication subscale (an average of 4.64 per item). These results imply that students, in general, tended to appreciate the understanding and communication aspects of language learning. The relatively lower scores on the Testing and Memorizing subscales suggest that only some of the students might become focused either on passing tests or memorizing rules rather than learning to improve their language skills.

Table 1: Students Scores on the COLE and Self-efficacy

Factor	Items	Possible Range	Range (actual)	Mean	S.D.
Memorizing	4	1-7	1-6.5	3.71	1.54
Testing	7	1-7	1-7	3.37	1.42
Drills & Knowledge	6	1-7	1-7	4.59	1.47
Grammar	2	1-7	1-7	4.84	1.66
Communication	3	1-7	1-7	4.64	1.71
Application	3	1-7	1-7	4.80	1.72
Understanding & Seeing in a new way	8	1-7	1-7	4.85	1.67
Self-efficacy	9	1-7	1-7	4.49	1.50

The Correlations between Factors of the Two Surveys

In order to acquire the quantitative results about the interplay between students' conceptions of learning and self-efficacy, the relationships between students' responses on SE questionnaire and their scores on the COLE scale were explored; the correlation coefficients are also presented. Table 2 describes the correlations among the factors resulting from each survey. Factors in students' conceptions of leaning in EFL consisted of *Memorizing, Testing, Drills and practices & Increasing knowledge*, *Grammar, Communication with foreigners, Application*, and *Understanding & seeing in a new way* in the current study. The outcome indicated that all the factors were positively and significantly related to each other ($r = 0.34$ to 0.86, $p<0.05$).

In a similar fashion, academic EFL self-efficacy was found to be positively related to conceptions of learning ($r = 0.25$ to 0.73, $p <0.05$). It is worth noticing that "testing" seemed to play the least important role in academic self-efficacy ($r = 0.25$, $p <0.05$) while "understanding & seeing in a new way" play the most important role in academic self-efficacy ($r = 0.73$, $p <0.01$).

Table 2: The correlations among the subscales of the two surveys

	MEM	TES	DRI	GRA	COM	APP	UND	ASE
MEM	1	0.70**	0.55**	0.45**	0.47**	0.62**	0.51**	0.34**
TES	0.70**	1	0.46**	0.45**	0.37**	0.46**	0.44**	0.25*
DRI	0.55**	0.46**	1	0.75**	0.67**	0.70**	0.65**	0.59**
GRA	0.45**	0.45**	0.75**	1	0.82**	0.75**	0.75**	0.55**
COM	0.47**	0.37**	0.67**	0.82**	1	0.86**	0.73**	0.47**
APP	0.62**	0.50**	0.69**	0.75**	0.86**	1	0.84**	0.54**
UND	0.51**	0.44**	0.65**	0.75**	0.73**	0.84**	1	0.73**
ASE	0.34**	0.25*	0.59**	0.55**	0.47**	0.54**	0.73**	1

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

Note: MEM: *Memorizing;* TES: *Testing;* DRI: *Drills & Knowledge;* GRA: *Grammar;* COM: *Communication;* APP: *Application;* UND: *Understanding and seeing in a new way;* ASE: *Academic self-efficacy*

Differences on the two scales before and after the online tutoring

This study further compared students' score on the self-efficacy and the seven subscales of the COLE before and after they had experienced the online tutoring program. Paired t tests were used to examine differences between student scores before and after the online tutoring. Table 3 reveals that students' score on the conception of learning English as "Testing" did not show statistical differences at the 0.05 significance level. That is, the students perceived similar levels of the "Testing" conception before and after the online program, and their lower scores suggested that only some of them considered that learning English is passing tests. However, on the other subscales of COLE, students expressed statistically higher scores after the online tutoring programs. In other words, the conceptions of "Memorizing," "Drills & Knowledge," "Grammar," "Communication," "Application," "Understanding & seeing in a new way" were improved. Their academic self-efficacy was also enhanced.

Table 3: Paired t tests for the subscales of the two surveys

	Pre-test Score		Post-test Score		
	Mean	S.D	Mean	S.D	T-test
Memorizing	3.71	1.54	4.25	1.39	-2.14*
Testing	3.37	1.42	3.83	1.40	-1.82
Drills & Knowledge	4.59	1.47	5.49	1.00	-4.41***
Grammar	4.84	1.66	5.48	1.05	-2.66*
Communication	4.64	1.71	5.42	1.05	-3.34**
Application	4.80	1.72	5.76	0.83	-4.17***
Understanding & Seeing in a new way	4.85	1.67	5.77	0.88	-4.24***
Self-Efficacy	3.71	1.54	4.25	1.39	-3.04**

*$p<.05$, **$p<.01$, ***$p<.001$

Discussion and Conclusion

Situated in a Chinese EFL context, the present study aimed to explore the use of synchronous online tutoring in a medical college in Taiwan. Students' conceptions of

learning English as well as their self-efficacy in learning English were investigated before and after the use of synchronous online tutoring. By gathering 74 students' responses of the COLE and SE scales, this study attempted to shed light on the combination of language learning and ICT that can enhance college students' language learning.

When investigating students' self-efficacy and conceptions of learning English, it was found that students generally showed high self-efficacy in learning English. In addition, they attained the highest score on the conception of "understanding & seeing in a new way" and the lowest score on the conception of "testing." This result indicated that most students considered English learning as an important means for understanding foreign cultures and broadening their perspectives of the worlds. However, some of them still associated English learning with taking tests. As studies (Rezazadeh & Tavakoli, 2009; Young, 1986; Zhang, Liu, Zhao, & Xie, 2011) reported that test anxiety affected language learners' performance negatively, language educators are therefore suggested to adopt multiple assessment methods and avoid traditional tests when evaluating students' learning in EFL classrooms.

This study further revealed that there were some relationships between student conceptions of learning English and self-efficacy in learning English. By and large, students' conceptions of learning were positively related to their self-efficacy. The interaction between factors in COLE and SE indicated that "testing" seemed to play the least important role in academic EFL self-efficacy while "understanding & seeing in a new way" played the most important role in academic EFL self-efficacy.

It is also encouraging to find that students' self-efficacy was significantly improved after the online tutoring. In Honicke and Broadbent (2016) review about ASE, it is suggested that ASE is a highly malleable construct that is influenced by the learning environment, can influence both academic performance and positive learning emotions associated with academic success. According to Mahyuddin et al. (2006), self efficacy was enhanced when students perceived they performed well. Therefore, teachers are suggested to provide students with this kind of learning activities to help language learners improve self-confidence and eventually self-efficacy.

This study was not conducted with an experimental research design in place; hence, it is limited to correlation analyses between students' conceptions of learning English and academic self-efficacy. However, this research strongly suggests that student conceptions of learning were an essential component in determining students' academic self-efficacy and vice versa. The main thrust of the findings derived from this study indicated that language teachers need to be highly aware of students' conceptions of learning when designing online learning experiences.

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