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Graduate Students' Perceptions of the Problems in Writing Research Articles in English in Higher Education: A Taiwan-based Study

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Abstract

Writing research articles in English has become one of the most common currencies in higher education. In Taiwan, nowadays issues related to writing research articles in English have attracted considerable attention from the Taiwanese government authorities, particularly Ministry of Education, Ministry of Science and Technology, as well as universities, teachers and students. The present study seeks to explore Taiwanese graduate students' perceptions of the problems in writing research articles in English. Through semi-structured in-depth interviews with 30 students, the findings reveal that the students' perceived difficulties can be in general categorized into two types. The first type is the subject knowledge in their own field, such as not good at selecting an appropriate topic and reviewing literature well. The second type is related to English language use, such as inadequate command of academic written English and lack of writing skills to develop their articles at levels of lexis, syntax and discourse. Their writing processes are largely influenced by their first language. Despite such disadvantages, they are motivated to remedy the situation as English plays an important role in research writing. In terms of helping graduate students in writing research articles in English, the students in this study suggest that the school should offer more opportunities for them to write academic English. Writing training through a series of related writing courses, workshops and individualized guidance could be beneficial to them. Implications in light of the findings of this study are discussed and concluded.

Keywords: graduate students; perception; writing; research articles; semi-structured interviews; Taiwan

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Introduction

Graduate student training aims at both expert knowledge in a specific field and the ability of doing and reporting research. Prior to students earning their degrees, especially for doctoral students, they are often required to write and publish some research papers. It has been indicated that academic competence, which is mostly shown by the ability to write and publish research findings in the academic discourse, is critical to the career development of graduate students (Swales & Feak, 2012).

In view of the increasingly global nature of higher education, writing research articles in English has become one of the most common currencies in higher education. In Taiwan, nowadays issues related to writing research articles in English have attracted considerable attention from the Taiwanese government authorities, particularly Ministry of Education, Ministry of Science and Technology, as well as universities, teachers and students. For example, in some universities, publication in international English language journals has become a prerequisite to doctoral graduation. Graduate students often have to prepare not only a thesis but also some publication in international English language journals to fulfill degree requirements. As English has increasingly become the major international language of research and publication, there is a need to explore the problems in writing research articles in English for non-native speakers of English.

In the past, despite the relatively rich literature on graduate students' perceptions of the problems for writing research articles in English, nevertheless, these studies were mainly conducted with the students either in the Western World such as US, UK and Australasia (e.g., Casanave, 2010; Gazza et al., 2013; Kamler & Thomson, 2014; Paltridge et al., 2012a; Paltridge et al., 2012b) or Hong Kong (e.g., Flowerdew & Li, 2009; Kwan, 2008; Li, 2009; Li & Flowerdew, 2009) where teachers use English as their instructional language, a significant contrast to the teaching context in Taiwan. The problems in a non-English-medium education system or an EFL context where English is not an instructional language are less addressed.

In other words, while there is a considerable literature both on academic writing and the particular nature of developing English for academic purposes, there has been relatively little on this topic from the perspective of aspiring academics seeking to make their mark as a researcher in a non-English-medium education system. Specifically, the core problem being addressed in the paper (i.e. the difficulties of publishing in English journals for graduate students in a non-English medium of

instruction system) is a gap in the literature which this paper aims to fill focusing on the specific case study of Taiwan. More research is needed about how novice researchers, particularly for graduate students handling difficulties and engaging in writing research articles. In addition, research into student experiences can enable teachers to rethink in order to provide students with better writing support. As stated by Leki et al. (2008), empirical studies from a variety of socio-culturally situated contexts enrich the research of academic writing. For all these reasons, the current study seeks to stimulate inquiry into an under-explored field and sets out to investigate Taiwanese EFL students' perceptions of difficulties and needs for writing successful research articles.

Literature Review

Research Writing for Second Language (L2) Graduate Students

Research writing plays an important role for graduate students in the academic community. As suggested by Lea and Street (1998), it is of great value to understand diverse student writing practices in academic literacy across the university. Nonetheless, academic writing is far from a natural ability. Centering on student writing difficulties, predominantly for student writers at the stage of writing dissertation, studies have revealed that language usually presented a main problem for L2 students (e.g., Flowerdew & Li, 2009; Kwan, 2008). Chief among them are students writing in English where it is not their mother tongue, language of instruction or language of habitual use, in that there is ever greater competition to publish in reputable peer-reviewed English journals. As stated by Bartholomae (1985), students in the university have to learn “the peculiar ways of knowing, selecting, evaluating, reporting, concluding, and arguing” (p. 134) in writing that define the discourses of the academic community.

With regard to the written discourse, studies have examined student perceptions of writing different parts of research articles. For example, students in Shaw (1991) indicated that while there were various reactions in Literature Review, Introduction and Discussion were the most difficult sections to write. It was reported that students who considered Literature Review easy to write just repeated other people's ideas in paper writing, while those feeling more difficult in Literature Review tended to be more selective and critical in this section. Concerning Discussion, Bitchener and Basturkmen (2006) suggested that students' understanding of the role of the part was inadequate, probably because students did not have “macro feedback on the overall

structure and content parameters” (p. 13). This interpretation is in line with Dong’s (1998) and Swales and Feak’s (2012) findings that teachers tended to give more error correction on word usage, grammar and mechanics, while ignoring, to some degree, areas such as rhetorical structure or discourse organization, or other areas of the research such as selecting a topic and reading literature.

In terms of language problems, in Cooley and Lewkovicz’s study (1995) of graduate students at the University of Hong Kong, 50% students indicated having lots of difficulties in writing English. Shaw’s study (1991) also suggested that L2 students were usually concerned about their English language proficiency. Semi-technical vocabulary and choosing the right word for the context were selected as the most difficult areas of research writing, while some students stated their concerns about the use of formal language. Compared with L1 and L2 graduate students, Dong (1998) pointed out that the latter tended to indicate vocabulary as a weak area. As a matter of fact, full-fledged L2 researchers also had difficulties with language (Flowerdew & Li, 2009; Li & Flowerdew, 2009), revealing that the language problem is a widespread concern for many L2 writers.

Successful and Unsuccessful Stories in Research Writing

Casanave (2002) explored how graduate students, both L1 and L2 speakers, dealt with a number of academic writing tasks, such as dissertation writing. Her study reveals that students learned to write successfully partly through carefully following assignment guidelines, and partly through paying attention to their teachers’ written feedback on their papers. These students not only understood the major role that writing played, but also gladly made changes in writing after the study. In Casanave’s (2010) study, she also indicated that the role of graduate advisors is important in helping students face risks in dissertation writing. What graduate students need is not only how to design and carry out their research but also how to present their research in an acceptable standard of English. The consultation between graduate students and graduate advisors is a dynamic exchange that a variety of meanings are negotiated. While Casanave (2002) is a successful survival story, Zhang in Schneider and Fujishima’s (1995) study did not seem to be so. With all his hardworking, Zhang, a Chinese speaker enrolling a number of courses in a US university, failed the graduate course work after a year’s struggle. Potential explanations for the failure included his inadequate English proficiency, little interest in American culture, and inappropriate strategies to solve language problems. Schneider and Fujishima (1995) therefore called for teachers to meet students’ individual needs. As indicated by Fernsten and

Reda (2011), teachers need to help “students in meeting the challenges of academic writing more effectively” (p. 171).

In Taiwan, although writing research papers in English is gradually becoming a requirement for graduate students in a number of universities, nonetheless, it often places an additional burden on them due to their lack of writing experiences and English proficiency. For graduate programs in Taiwan in general, in addition to some credit-bearing subjects, such as ‘Thesis Writing’ and ‘Advanced English Writing’, students often do not need to take any other English or writing courses. In view of this, to ensure that students are provided with the best possible start in graduate programs, it is crucial to understand graduate students’ experience in the learning of research writing. With this purpose in mind, this study set out to investigate graduate students’ experience in research writing in English, with a specific focus on their major concerns and difficulties encountered in the research and writing process, as well as their perceived needs in research writing support in an EFL context, Taiwan. As suggested by Woodward-Kron (2007), “more research is needed in different teaching contexts and at various stages of students’ writing in order to provide a greater understanding of the writing support” (p. 253).

Research Method

The present study aims to explore Taiwanese graduate students’ perceptions of the problems in writing research articles in English. The purpose of the study was twofold: (1) to identify difficulties encountered by Taiwanese graduate students writing research papers; and (2) to make recommendations that address Taiwanese graduate students’ writing needs so that it may make them feel confident and become lifelong writers in English. It seeks answers to the following questions:

1. What are Taiwanese graduate students’ perceptions of writing research articles in English?
2. What are their problems of writing in English?
3. What are their needs for writing successful research articles?

Data Collection

In this study, semi-structured in-depth interviews of between 1 and 1.5 hours were conducted with 30 Taiwanese EFL graduate students, who attended doctoral and master’s programs across a range of different disciplines, including linguistics, economics, sociology, psychology, business management, civil engineering, electrical

engineering, and life science from five academic institutions in Taiwan. The interviews, conducted in the students' first language (Mandarin Chinese), were carried out in university classrooms. All the interviews were audio-recorded, with the students' consent.

The purpose of the interviews sought to find out what challenges graduate students experienced and how they coped with the challenges in writing research papers in English. The format of interviews consisted of three parts. The first part was demographic information, including fields of research and experience in English academic writing. The second part focused on academic writing difficulties encountered by graduate students in language, content development, organization, structure, and writing different sections in a research paper. The third part involved graduate students' perceived needs for help during the academic writing process. Open-ended explanatory questions were used for graduate students to reflect on the role of English in their academic writing and their perceptions of the possibilities and limitations for their attempts in writing English articles. The interview questions, designed to address the three research questions presented above, are listed in Appendix 1.

Data Analysis

The data analysis was a trial-and-error and continuing process. In this study, from the data collected, the major points were first identified and marked with different codes, which were from the interviewees' transcription. Coding was open and all the data were coded in order to find out the concepts line by line and how they could be categorized. The concepts were then compared and contrasted back and forth when data were coded further, and at the same time combined into different concepts, and finally modified, sharpened and renamed. Based on the groups of similar concepts, categories were established, which were the beginning for the generation of an explanation of the data in research (Kelle, 2005). The stopping point was finalized when there was no emerging category anymore.

Three main categories in the present study were students' perceived difficulties in the subject knowledge, students' perceived difficulties of the problems in English language use, and students' perceived needs in research writing support.

When the data in an interview were reported in this study, they were indicated by the pseudonym of the interviewee, e.g., student 5. Table 1 provides coding categories, number of occurrences, and a small sample of the raw data coded (in both English and Chinese).

Results

The following three main categories resulting from the transcription and coding of student responses in the interview data showed students' perceptions of the problems in writing research articles in English in higher education in different aspects.

Students' Perceived Difficulties in the Subject Knowledge

Selecting a Topic

When asked to name their concerns about research writing, all the students pointed out that topic selection was one of their major concerns. They tended to hold a similar view as to what could be considered a good or worthwhile research topic. Creativity or originality is important in selecting a topic. For instance, a representative example given by student 13 is as follows:

In light of the current trend for students to write and get published in international journals, such as journals listed on Sciences Citation Index and Social Sciences Citation Index, I need to be creative in selecting my topic. In other words, I need to have something new or original in my research writing. Nonetheless, I know it is usually not easy. (student 13)

Her saying of "something new or original" was further explained by her later remarks: "Probably I can try some unconventional, but still acceptable topics. Searching different ideas can help in my thinking." Similarly, student 5 wanted her research writing to be different from others. Referring to her future work, she articulated her concern that her research may turn out to be not significant:

There are many research articles around. I am thinking is it possible that I can write something that makes a difference? I do not want my research to be merely another thesis or research article. For instance, in the school I pass the oral defense and get the degree. That is all of it. My thesis still sits unnoticed and quietly on the bookshelf in the school library. Or, if my research article gets

published, only a few researchers notice it. I regard an innovative or significant research topic as the most important factor in research. (student 5)

In view of this, student 5 would like her thesis and research article to make an impact in the future. An innovative or significant topic can play an important role. She further elaborated that she would first explore the previous literature and see if the topic was already well-researched. She noted: "If it has been already well-researched, it may not be worth spending my time and effort on it." Nevertheless, it is noted that the students in different disciplines may perceive differently in topic selection. A typical example is as follows:

I think that graduate students in natural sciences generally undergo less difficulty in selecting a research topic since research is usually part of a team project. However, those in humanities and social sciences are in general less constrained on research topics either for course-based or thesis research, but this freedom may create uncertainty or even perplexity concerning what is the genuine meaning of a legitimate, feasible, or significant research topic. (student 26)

Reviewing the Literature

Following topic selection, reviewing the literature presented another challenging task for these graduate students. In the present study, the students indicated that they had little experience in searching and reviewing the literature. They stated that their past English writing instruction required them to write mainly personal narratives rather than research-based articles. Particularly before entering a university, their English writing often centered on personal or trivial topics.

In addition, despite the fact that university libraries in Taiwan are generally well-equipped, English language books and articles are still less available, given that English is a foreign language. All the students complained about the limited sources available. For instance, student 15 indicated that the library collection at the university was quite small. While some articles could be downloaded directly from the Internet, others were not available online. In some cases, students had to pay money in order to read an article, but the option was often regarded as a luxury that most students could not afford.

Finally, after the students successfully got sources, a majority of which was written in academic English, reading and synthesis were another great hindrance. Student 2 expressed frustration in this part:

There are many articles and books. I need to read and synthesize the information in them. My reading speed is slow. I need to paraphrase and summarize, and write in my own words. I need to get the major points. It is usually not easy for me. Especially the articles are written in academic English. (student 2)

This comment delineates the anxiety experienced by graduate students undertaking the literature review. For novice researchers, such as graduate students, reading and synthesizing a huge amount of literature can be overwhelming and may even be frustrating.

Students' Perceived Difficulties of the Problems in English Language Use

Other than students' perceived difficulties in their subject knowledge, they also pointed out problems in English language use. Most of them had problems in the use of vocabulary, grammar and discourse organization, and were worried about writing academic English. Some of the representative examples are given as follows. For instance, student 1 showed anxiety and was concerned about academic vocabulary and its usage in English. She said:

In view of the growing global power of English as a research lingua franca, English as foreign language students are generally disadvantaged in global research games, especially for those coming from non-English medium of instruction systems. For me, English writing is much a source of pressure. I am not able to articulate my thoughts well and do not think that I can write fluently due to my lack of vocabulary. My English writing is sloppy. I consider using appropriate and correct academic vocabulary a difficult part in writing a research paper as it not easy for me to master. (student 1)

Based on the interview data, to some extent she lacked confidence and was conscious of her inadequate command of academic English writing. She tended to reveal her alertness to the issue of lack of vocabulary. In addition, when writing in the academic community, she may need to learn how to write like an academic and use formal English rather than colloquial or conversational English, such as using casual words like 'stuff' and 'things' and phrases like 'a bit' and 'sort of' in writing assignments.

Second, aside from the problem of insufficient vocabulary and its usage, limited grammar knowledge is also a concern:

My advisor said that my writing is sometimes grammatically incorrect. He recommended that I should read more academic books and journal papers to enhance the use of not only vocabulary but also grammar correctly. (student 13)

This excerpt indicates that she was reminded of the grammar issue during the meeting with her advisor, which may suggest that she should be sensitized to grammar in writing research articles in English and need to cultivate a habit of reading extensively in academic books and journals in order to familiarize herself with the use of vocabulary and grammar in the academic milieu.

Finally, although the students acknowledged the importance of discourse organization in writing research articles in English, they all seemed to have problems with it. For instance, student 2 said: “After I have a rough draft, if the professor says there is a problem with the discourse organization and the article is not structured clearly and logically, I need to make revisions accordingly.” Similarly, student 23 regarded discourse organization as a difficult part to master: “I need to know the functions and rhetorical moves of different sections in research articles. For example, I need to refer to a number of sample writings and therefore have an idea of what the discourse organization is like.”

Students’ Perceived Needs in Research Writing Support

For students’ perceived needs in research writing support, in terms of their top choice, half of the students stated that the school should offer more regular academic writing courses as they needed instruction in research writing. For example, student 4 hoped for more writing courses particularly on academic vocabulary, one of her major concerns about research writing. Student 13 also mentioned that she would like to take more writing courses, suggesting that the university could offer more writing opportunities, which she explained, would result in better writing: “I feel that I a bit get lost in the research world. When I have more opportunities to learn how those experienced researchers write for journal articles and to write a lot in the course regularly, I will most likely make improvement in writing.”

While some students such as student 4 and student 13 indicated the need of support through writing courses, the other students (30%) tended to prefer short-term writing workshops rather than long-time or regular writing courses mainly due to time consideration and flexibility. For instance, student 5 said:

Universities can hold a series of writing workshops to improve the skills of student researchers with the aim of getting their work published in journals and books. Primarily because of time consideration and flexibility, I prefer short-term writing workshops. I can select writing topics that I specifically need in a series of writing workshops, such as focusing on academic vocabulary, grammar and discourse organization. (student 5)

Student 8 stated:

I appreciate the need for, and help from, instruction in English academic writing. Every writer has his/her own weakness. In particular I am likely to make certain errors in English writing due to the transfer from Chinese. The issue of poor writing may perhaps be partly solved with the academic writing support from the school, such as holding a series of workshops in different specific writing topics. (student 8)

As evidenced in the interview data, they longed for more short-term writing workshops focusing on a range of writing topics due to the reason that compared with writing courses, the time of workshops is more flexible and they can address her specific academic writing need at hand. Their explanations also revealed that it is not easy to write in another language due to the transfer from Chinese, particularly if the result of not mastering in that language affects one's chances of getting the work published in journals and books.

Still the other students (20%) preferred individualized writing guidance mainly because they wanted to have tailored feedback. For example, having taken all the required writing courses and most of the workshops provided at the university, student 12 currently looked forward to individualized feedback and more personalized instruction:

I need individualized writing guidance. For instance, in method and results sections, I need to know if I use the correct method to analyze, as well as if I interpret data and discuss the results appropriately. I wonder whether there is something that I can follow, like some kind of one-on-one guidance that can assist me how to write different sections well in a research paper. (student 12)

Discussion

The results in the present study can be interpreted as follows. First, it can be inferred that if the research is not able to make a difference, it may not be worth researching. The research should be able to contribute to society as a whole. These students' concern with a research topic may also reveal their attempt to make sense of the research culture that they were entering (Kamler & Thomson, 2014). On top of that, based on the interview excerpt, for example, as indicated by student 26, it suggests that compared with students in natural sciences where their research is often part of a team project, students in the field of humanities and social sciences may need more help and guidance with the topic decision from others, such as thesis advisors to help them choose an appropriate topic which is genuinely worth researching.

Second, in term of reviewing the literature, Taiwanese EFL learners generally have little research writing experience before their master's or doctoral studies. Therefore, for graduate students, reviewing the literature – a task that involves skills such as searching sources, integrating and synthesizing ideas and theories – is often an entirely new experience and constitutes a huge task. In addition, whilst many of them were motivated to use library resources provided by their university because of their need in writing, they reported that the university did not have a good stock of English language books and articles as well as did not offer good demonstrations of electronic database search geared towards their specific disciplines when they were searching the literature.

Third, in the present study the students indicated that in vocabulary, grammar and discourse organization, Chinese writing is quite different from English writing. There may be several reasons to explain why the transfer of Chinese poses problems for them when writing English. The first major reason is their confusion of specific word or phrase usages. They may not express their thoughts with correct words or phrases. Another reason is that they have insufficient understanding of English grammar rules and are not aware of differences between Chinese and English. Moreover, in terms of discourse organization, transfer of the induction structure, from specific to general may be a text logic found in Chinese students' English writing. Compared with English discourse organization which is often considered linear, in the eyes of English speakers, Chinese students' thoughts or patterns in English writing may be regarded as being organized in an indirect way (Connor et al., 2008; Swales and Feak, 2012). As suggested by Paltridge et al. (2012b), the discourse organization remains “stabilized for now in terms of its social action and purpose” (p. 332).

Fourth, contrary to Casanave's (2010) and Woodward-Kron's (2007) findings which show the important role of graduate advisors in helping students to face risks on account of the formulaic styles of dissertation writing and scaffold their academic writing, in the present study, in Taiwan where English in most cases is graduate advisor's and students' foreign language, graduate advisors may not be of great help in helping students' academic writing in English, such as in the areas of vocabulary, grammar and discourse organization. On the other hand, the present study reveals that students' perceived top needs in research writing support are writing courses, writing workshops, and individualized writing guidance.

Finally, concerning the need for academic writing support, students may have a rich knowledge in their field of study. Nonetheless, they still need assistance to apply the knowledge, particularly in cases where their first language is very different from that of English. Based on the interview data, to facilitate students' academic writing, they need support not only in content but also in language.

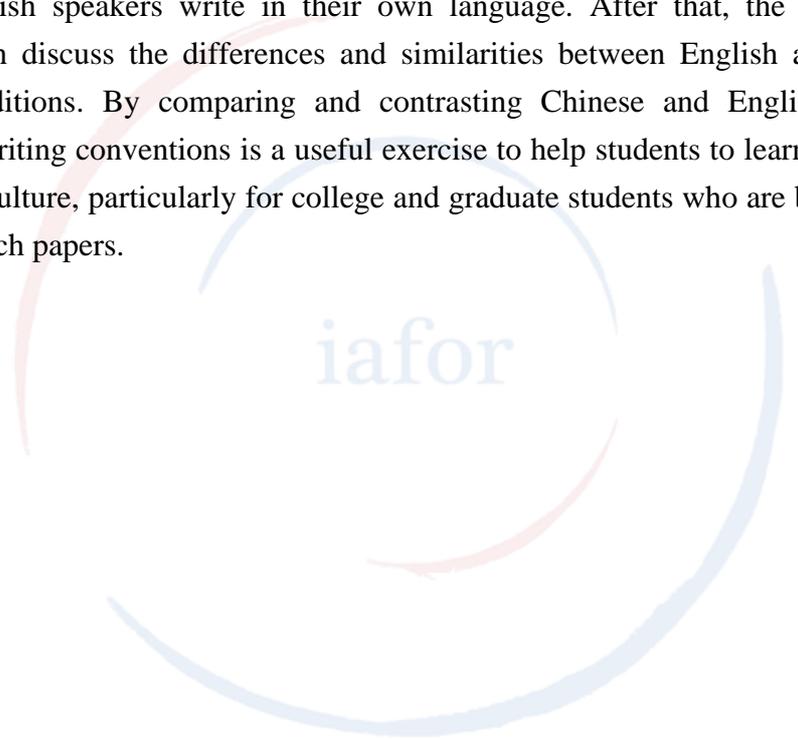
Implications and Conclusion

The present study set out to explore graduate students' concerns, their difficulties and perceived needs in research writing in Taiwan. The findings indicate that subject-knowledge related issues such as selecting an appropriate topic and reviewing the literature well were all the students' concerns about research writing. When reviewing the literature, the students faced difficulties such as resource constraints in English, problems with using sources in English, and difficulties with synthesizing and integrating information from various sources. In addition, regarding language use, they experienced difficulties at the levels of lexis, syntax and discourse organization in research writing. Due to these persistent problems in writing, when compared with native speakers, the students considered themselves disadvantaged.

Despite such disadvantages, they were motivated to remedy the situation due to the reason that English played an important role in research writing. More specifically, their inclination to learn to write research articles was influenced by their perceptions of the need to learn and improve the academic writing skills necessary for scholarly publication. On the level of pedagogy, the present study advances our current understanding of how Taiwanese graduate students learn to write in the academic community. It reveals the importance of the awareness of university policy makers and teachers of English for academic purposes concerning the potential discrepancies between students' needs for effective language support and universities' actual

language affordance. This prompts university policy makers and teachers to reflect critically on their planning, preparation and delivery of relevant courses so as to meet these students' expectations through research writing in English.

Finally, in terms of writing pedagogy, teachers can use a contrastive rhetorical approach to teaching English writing (Kubota, 2010). For instance, teachers and students can brainstorm and collaborate with each other to build a cross-linguistic and cross-cultural understanding of English and Chinese writing traditions. The teacher can ask students to share some important features of their writing traditions, illustrating with a model research paper. This kind of writing exercise is without making true or false presupposition and gives students an opportunity to see how native English speakers write in their own language. After that, the teacher and students can discuss the differences and similarities between English and Chinese writing traditions. By comparing and contrasting Chinese and English, such as academic writing conventions is a useful exercise to help students to learn a language in another culture, particularly for college and graduate students who are beginning to write research papers.

The logo for the International Association for Far Eastern Research (iafor) is centered on the page. It consists of the lowercase letters "iafor" in a light blue, sans-serif font. The text is surrounded by two large, overlapping circular arcs: a light blue one in the foreground and a light red one behind it, creating a stylized circular frame around the text.

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Appendix 1

Interview Questions

1. What do you think about the role of English writing at your university?
2. What do you think about your level of English writing proficiency?
3. Would you please illustrate your experience in writing research articles in English?
4. What are similarities and differences when you write research articles in English and Chinese?
5. In writing English and Chinese papers, which part(s) of the paper are the easiest/most difficult for you? Why?
6. When compared with native speakers, do you feel at a disadvantaged position in writing research articles in English?
7. Do you have any personal problems in writing English papers? If yes, in which aspects?
8. Do you think you would write 'Chinese English'? If yes, can you specify and give me some examples?
9. What are your strengths and weaknesses in writing English papers?
10. Do you have any strategies that can make your English papers better?
11. How do you improve and revise your English papers?
12. What are your needs for writing successful research articles?
13. If you have any problems or obstacles in writing research articles in English, what would you do?



Mitigating Climate Change by Household Sector: Keys of Promoting Energy-Efficient Appliances

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Abstract

This study base on the theory of planned behavior (TPB) and introduced perceived benefit or cost as an independent variable additionally to develop the model of Efficiency action toward Climate Change (ECC model). This study conducted structural equation modeling, and found that the strategy of promoting energy-efficient appliances should emphasize on global warming with the concept of perceived benefit or cost. This study suggested to the industrial sector should provide the energy consumption information of all their appliances to the public; it could raise the intention of household sector to purchase energy-efficient appliances.

Keywords: global warming; climate change; theory of planned behavior; energy-efficient appliances.

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1. Introduction

The ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC) is to stabilize GHGs concentration in the atmosphere at a level, which should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change. Most mitigation or adaptation strategies for climate change have been directed toward long-term options such as inducing new low-carbon technologies or creating cap-and-trade regimes for emissions. However, Dietz et al. (2009) emphasized that household sector is one of the major emitters of GHG. The goal of this study was to find out the factors which influenced the intention of household sector to purchase energy-efficient appliances, and gave some suggestions to the industrial sector.

2. Theoretical Framework

2.1 Literature Review

The theory of planned behavior (TPB; Ajzen and Fishbein, 1986) and the modification models were often used to examine various proenvironmental behaviors. TPB is an extension of the theory of reasoned action (TRA; Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975). In the theory, attitudes toward the behavior, subjective norms with respect to the behavior, and perceived behavioral control are usually found to predict behavioral intentions. TPB model has been applied successfully to a wide range of human behaviors (Brown et al. 2010).

2.2 Research Model

This study based on TPB and oriented from mitigating global warming to develop the model of Efficiency action toward Climate Change (ECC model). The ECC model comprehends all the independent variables of TPB, additionally introduced perceived benefit or cost as an independent variable, and assumed it can predict the intention of actions as well.

3. Methods

3.1 Research Variables

Environmental Attitude (EA)

As a general rule, the more favorable the attitude with respect to a behavior, the stronger should be an individual intention to perform the behavior under consideration (Ajzen et al., 1986). General behavior should be more closely related to general environmental attitudes (Klößner and Blöbaum, 2010). In order to find out the key predictors of purchasing energy-efficient appliances, ECC model identified the attitude of the individual to purchase energy-efficient appliances.

Subjective Norm (SN)

Subjective norm is the perceived social pressure, and based on individuals' perception of other important people in their life would want them to perform or not to perform the behaviors. Subjective norm can predict intention significantly in the study of voting behavior (Fishbein and Ajzen, 1981). The ECC model followed most of the studies, and identified subjective norm as: the person who the individual concerned will remind the individual to purchase energy-efficient appliances.

Perceived Behavioral Control (PBC)

The role of perceived behavioral control in TPB is the non-volitional elements which can predict the behavioral intention, can nevertheless be considered a unitary latent variable in a hierarchical factor model (Ajzen, 2002). The ECC model followed the studies of Abrahamse and Steg (2009), Lam (2006), and identified perceived behavioral control as: It is convenient for individual to buy energy-efficient appliances.

Perceived Benefit or Cost (BOC)

The performances of environmental behaviors similar to the other behaviors were influenced by the perceived of benefit or cost of individuals, the less benefit or the more cost would restrict the individual to perform the environmental behaviors (Patchen, 2006). The ECC model followed the studies of Loureiro et al. (2002), Dalton et al. (2008), and Ward et al. (2011), identified perceived benefit or cost as: Usually the energy-efficient appliances are more expensive than traditional ones, but the reduction of energy bills by using energy-efficient appliances were more than the premium price.

Intention of Efficiency Actions (IEA)

The ideas of this study are going to find out the key factors which influence the intentions of individual to purchase energy-efficient appliances. This study considered the appliances of citizens were still in use, so followed the studies of Lam (2006), Clark et al. (2007), Chen and Chao (2011) identified intention of efficiency actions as: When replacing the appliances, the individual may willing to purchase the energy saving ones.

3.2 Research Design

Kaohsiung is the most important industrial metropolis in Taiwan. Annual average per capita emission of CO₂ in Kaohsiung is 26.3 t (Environmental Protection Bureau of Kaohsiung City Government, 2009). This study aimed to develop the model of Efficiency action toward Climate Change (ECC model), and applied the structural equation modeling (SEM) to confirm the model by the sample of Kaohsiung residents.

4. Results and Discussion

4.1 Reality Analysis

The Cronbach's alpha value of each constructs in ECC model are above 0.7, which comply with the suggestion of Hair et al. (2006), the consistency of the constructs were acceptable.

4.2 Confirmatory Factor Analysis

A confirmatory factor analysis was conducted. Hair et al. (2006) suggest that a critical ratio (C.R.) of 0.7 and above indicates good composite reliability; they also suggest that average variance extracted (AVE) value of 0.5 and above indicates a good convergent validity. Doll et al. (1994) suggest that goodness-of-fit (GFI) values of 0.8 and above indicate a reasonable fit. Byrne (2001) suggests that a comparative fit index (CFI) value of 0.9 and above indicated a well-fitting model, and a Tucker-Lewis index (TLI) value close to 1 showed good fit to the model. Byrne (2001) also suggests that a root-mean-square error of approximation (RMSEA) value below 0.08 indicated a comparatively good fit. Joreskog and Sorbom (1993) suggests that a χ^2/df value below 5 indicates that the model is acceptable. A structural equation modeling was conducted, most of the indicators in this study showed a well fit to the corresponding constructs of ECC model; and squared multiple correlations (SMCs) showed that all of the observed variables reflected the constructs (latent variables) effectively.

4.3 Model Test

A confirmatory factor analysis to whole model was conducted. Kline (2005) argued if the correlation coefficient is more than 0.85, it shows multicollinearity between the variables. The correlation coefficients between the latent variables of ECC model are about 0.132 to 0.627, represented there were low or medium correlation between the latent variables of ECC model. To go further, this study conducted the structural equation modeling (SEM) to test the ECC model at the second step, the value of the indicators showed well fit to the model with $\chi^2[160]=3.093$, GFI value of 0.811, CFI value of 0.922, TLI value of 0.908, and RMSEA value of 0.095.

4.4 Path Analysis

This study conducted the path analysis in the ECC model, it showed that environmental attitude can predict the intention of efficiency actions ($p < .01$); on the other hand, subjective norm, perceived behavioral control and perceived benefit or cost can predict the intention of efficiency actions better ($p < .001$); this study concluded that all the independent variables can influence the dependent variable significantly in the ECC model.

4.5 The comparison of TPB and ECC model

ECC model base on TPB and introduced perceived benefit or cost as an independent variable additionally. Byrne (2001) argued that the parsimony goodness-of-fit index (PGFI) under the value of 0.5 represents un-expectable to the model. The PGFI value

of ECC model was 0.618, which means the parsimony of the ECC model was acceptable. On the other hand the explained variation of ECC model was 61.9%, more than TPB (58.4%). This study concluded that, the explained variation of intention to purchase energy-efficient appliances, ECC model showed superior to TPB.

5. Conclusion and Suggestion

5.1 Conclusion

All the independent variables of the ECC model (environmental attitude, subjective norm, perceived behavioral control, and perceived benefit or cost) could influence the dependent variable (intention of purchasing energy-efficient appliances) significantly. This study concluded that the promoting of energy-efficient appliances should not only appeal for global warming or climate change, because the effect of proenvironmental attitude to the intention of purchasing energy-efficient appliances was not enough. The strategic of promoting should emphasize on global warming and go along with the concept of subjective norm, perceived behavioral control, and perceived benefit or cost.

This study found that the opinion of the person who the individual concerned may influence the intention of the individual of purchasing energy-efficient appliances. This study also found that, usually the energy-efficient appliances were more expensive than traditional ones, if the individual perceived the reduction of energy bills by using energy-efficient appliances, could raise the intention of individual to purchase the energy-efficient appliances.

5.2 Suggestion

This study suggested the industrial sector should provide the energy consumption information of all their appliances, and made a comparison list for salespeople or retailers to introduce these appliances. The households can compare the energy consumption and the cost of the appliances immediately. It is more possible for the households to purchase the level one (the most energy efficient) appliances.

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Technology Integration in a Taiwan Elementary School: Analysis of Effects of School Principal Leadership from a Change Agent Perspective

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Abstract

Narrative research method was used to determine, from a change agent perspective, how the leadership behaviors of the two elementary school principals contributed to technology integration at the school. The two principals served at the same Taiwan elementary school at different times. The findings suggest the followings: 1) the commitment of the first principal to exploring various avenues for technology acquisition at the early stage laid a strong foundation for further technology integration; 2) responsive technology acquisition behavior by the second principal encouraged teachers to experiment with technology; 3) the vision of technology for learning of the second principal engaged teachers in integrating technology in the classroom; 4) teacher empowerment by the second principal ensured that teaching effectiveness was not impaired by an excessive workload; and 5) the actions of the second principal to empower the right person as technology leader catalyzed the technology integration process.

Keywords: technology leadership; principal, technology integration, elementary education

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1. Introduction

The impact of technology on teaching and learning is a critical issue in education. Increased investment in information technology [IT] for school education is a global trend, and IT is expected to transform learning and teaching in schools. However, the application of IT in education has not met initial expectations (Dawson & Rakes, 2003; Staples, Pugach, & Himes, 2005). Technology alone cannot ensure quality learning. Ertmer (1999, 2005) described institutional and personal barriers to effective technology integration in schools. The former refers to contextual element such as technology accessibility, support, and professional development while the latter focuses on the pedagogical beliefs of teachers and their attitudes toward technology. Rogers (2000) further observed that these barriers are overlapping and interrelated and that they are dependent on the circumstances and relationships. The effective use of technology by teachers is mediated by their belief about what constitutes "good teaching" in the context of school culture (Windschitl & Sahl, 2002). Thus, technology integration is a process of transforming the thinking of educators about teaching and learning, and the role of technology in schools (Baylor & Ritchie, 2002). Therefore, effective technology integration may require cultural change in schools.

The leadership displayed by a school principal plays an important role in the cultural transformation of a school. Leadership requires the transformation of beliefs, attitudes, and behaviors (Burns, 1978; Kotter, 1998; McGee-Cooper & Trammell, 2002; Showkeir, 2002; Zaleznik, 1998). Since the principal has the most influential position in a school, the principal plays a critical role in transforming school culture (Fullan, 2003, 2007; Wallace, 2008). Teachers are willing to embrace innovations and changes when they perceive empowerment by their principal (Angelle, 2010; Chen, 2008; Hallinger, 2003). Hence, technology integration as an innovation requires that principals welcome innovative change and inspire their faculty to embrace change through empowerment. Unfortunately, principals are often ill-prepared for the technology leader role (Flanagan & Jacobsen, 2003). The leadership qualities needed for principals to implement technology in schools is also poorly understood. Hence, this study explored how principals contributed to successful technology integration in a Taiwan elementary school by studying its history of technology development.

2. Methods

The purpose of this study was to assess the behaviors of school principals at Victoria Elementary School¹ at Taiwan in terms of leadership qualities that contributed to successful technology integration at the school. Hallinger (2003) demonstrated the importance of studying the leadership of principals in the school context. Yuen, Law, & Wong (2003) argued that examining the history of IT implementation in a school can reveal the challenges of integrating technology. Researchers highly recommend narrative research for studying performance of an individual in contexts (Carter, 1993; Linde, 1993; Riessman, 1993; Seidman, 2006). Thus, this study used the narrative research method to examine Victoria principals for leadership qualities that contributed to technology integration.

¹ All the names used in this paper have been changed for confidentiality purposes.

Victoria was selected for analysis for several reasons. First, it was awarded Model school for the Seed Schools for Technology Integration. Second, Victoria is a small school located on the east coast of Taiwan. The east coast was disadvantaged in terms of technology integration (Research, Development and Evaluation Commission, Executive Yuan, 2006). Finally, the community surrounding Victoria is generally not affluent. All of these factors constituted obstacles to IT implementation. Therefore, this study attempted to explore how Victoria achieved successful technology integration despite its disadvantaged status.

2.1 Research Context

The typical school administrative structure in Taiwan includes four major divisions: academic affairs, student affairs, general affairs, and student counseling. However, because of its small size, Victoria only has only two divisions: academic-student affairs, and general affairs. Because of the limited personnel in small schools such as Victoria, teachers often have double responsibilities: classroom teaching combined with administrative duties. However, the classroom teachers at Victoria do not have administrative duties because Victoria has been operating a unique school administrative system since 2001. The school administrators designated this system the DWAT (the Division of Work between Administration and Teaching) because it allows classroom teachers to focus on teaching by releasing them from administrative duties.

2.2 Participant

The key informant in this study was John, who was responsible for technology implementation at Victoria since the computer technology was first introduced there. As the director of Academic-Student Affairs Division and the most senior staff member, John was also faculty member in charge of technology integration under the SSTIP. Thus, John was the best candidate for describing the history of technology development at Victoria.

2.3 Data Collection and Analysis

The researcher interviewed the key informant at Victoria to collect the data for this study. John was interviewed for about five hours during four separate sessions to accommodate his school day schedule. The interviews were unstructured, and John was simply asked to tell stories about technology adoption at Victoria. All interviews were recorded and transcribed. The researcher first identified the events that John considered to be significant to the development of technology integration at Victoria. By analyzing the events described by John, the researcher identified what happened, who the key actors were, what they did, what the consequences were, and how these consequences affected the development of technology integration at Victoria. The leadership qualities of the two school principals emerged in the process of data analysis. Finally, the researcher e-mailed the manuscript to John to complete the member check procedure.

3. Results

3.1 Bob Initiated Technology Implementation after Foreseeing the IT Trend

Public schools on the east coast of Taiwan are considered disadvantaged because the east coast is far less developed than the west coast. John recognized how Bob contributed to the success of technology integration at Victoria. Bob foresaw the IT trend in education and took initiative to implement IT by aggressively pursuing private funding for purchasing computers. As a result, Victoria had its first computer lab before the Ministry of Education (MOE) launched its policy requiring all schools to set up computer labs.

Bob thought that if we equipped students with IT skills, they might be more competitive....Hence, he began raising funds by convincing the parents and the community of the importance of IT in school.... Hence, we were able to set up our first computer lab².

After Bob left for another junior high school, Victoria won a prize in a National Contest on Webpage Design. John said: “We won because of the efforts in the past seven years under the leadership of Bob.”

3.2 Teacher Involvement Increased because Peter Emphasized Teaching with Technology

Bob made strenuous effort to purchase equipment and assigned John to run the computer lab. However, he never asked teachers to use IT in the classroom. Bob did not communicate his vision of IT; hence, the teachers was not actively involved in technology adoption. Few were interested in learning or using those computers, and none learned how to guide the students to learn with IT.

Bob did not consider IT as something that every teacher should learn....Consequently, no one could guide students how to do things with IT.... I was the only one who used the computers to teach the students keyboarding and who encouraged them to participate in contests.... The teachers were not interested.

The increase of technology equipment did not motivate teachers to adopt technology in the classroom. Teacher involvement increased when Peter expected the teachers to use technology in the classroom. As Bob’s successor, Peter had a vision of IT implementation similar to Bob’s. Peter continued to prioritize technology acquisition. Unlike Bob, Peter expected the teachers to use the technology in the classroom.

As a visionary, Peter expected the teachers to use IT in the classroom.... our school participated in a governmental projectBecause of that project, the teachers began using IT for their teaching even though it was kind of teacher-centered.

² All quotes in this paper were translated into English by the researcher.

3.3 Responsive Support from Peter Encouraged Teachers to Use Technology

Peter's support and encouragement were essential to teachers' experimenting with IT. He encouraged teachers to try new ideas with IT by responding to teachers' needs regarding technology equipment. Technology acquisition was based on what the teachers needed for their innovative teaching with IT. This responsive support significantly encouraged teachers to investigate the educative value of IT. As John claimed,

The support and encouragement of Peter was crucial. Peter appreciated any new ideas proposed by the teachers. He would support whatever the teachers wanted to accomplish in their teaching with IT by finding resources for them....For example, when a teacher requested a document projector for teaching, Peter said, "I will try to get one for you."

3.4 Restructuring the Administration Gave Teachers Time for Productive Peer Interactions

Implementing the DWAT [Division of Work between Administration and Teaching] was a process of administrative restructuring in order to enable teachers to concentrate on teaching. The DWAT freed the classroom teachers from tasks irrelevant to teaching, which increased their time spent on informal social interactions. John observed that informal social interactions created a delightful climate of learning from each other, which encouraged innovative teaching and facilitated technology integration. Sharing successful experiences became part of the culture of Victoria, which encouraged the teachers to be innovative. Sharing innovative ideas.

The DWAT system distinguished our school culture from others....We are all happy with it. Peter and I wanted teachers to concentrate on their teaching....Another distinctive feature of our school culture is that teachers of the same grade interacted intensively with each other. They shared what they did in class.... They often got together when they didn't have class....Usually, there might be one or two teachers getting involved in an innovation that the administrators tried to implement at the beginning. But the others could quickly catch up because they often asked each other: "What are you doing? What have you tried?" I believe this interaction occurred because of the DWAT system. The DWAT system reduces administrative interference for the teachers, so they have more time to communicate and to exchange ideas about the curriculum and their teaching. Knowing others' successful experiences encourages them to try it themselves. I think it's kind of a silent transforming influence....This is our school culture.

3.5 Processes of Implementing DWAT as Teacher Empowerment

The DWAT implementation did not succeed overnight; the negotiation among stakeholders was time consuming. However, the processes transformed the school culture and empowered the teachers, and enhanced the mutual trust and respect between Peter and the classroom teachers. By giving up the veto, Peter showed his respect for teacher autonomy, and he sent a clear message to the teachers that he supported their empowerment.

We worked on achieving a consensus about the job descriptions for the administrators and the teachers through meetings.... One time, we discussed a job description when Peter wasn't present. When we submitted the decision to him, he opposed it. He thought the job description was unfair to the administration.... I thought it would hurt the teachers' feelings. So, I told Peter, "If you keep questioning the decision, it will end the communications. What you're doing is denying the consensus of the teachers...." Peter finally approved the resolution....I told Peter: "You must be present when we discuss any important issue involving a change of our organization. If you don't attend, you must accept the result"Empowerment leadership became our school culture.

3.6 Empowering John as a Leader Facilitated Technology Integration

Peter delegated leadership and responsibility to John. This empowerment enabled John to balance the school accountability and teacher autonomy. John understood that school accountability was very challenging for all principals. He also empathized with teachers who were concerned about overloading and losing autonomy if any principal overdid it. Hence, John convinced Peter that "sometimes, less is better."

All principals are the same. They all focus on performances and outcomes. But, we also realize that the teachers don't expect too much extra work. Administrators who always command teachers without considering their teaching loads will encounter resistance. I have discussed this with Peter: "If you want to implement any important policy or innovation, please let me discuss it with the teachers first. If the teachers don't refuse it at the very beginning, that will be easy to deal with even though they don't have strong willingness to do. But if the teachers don't support your ideas, you have to accept the fact"...The principal agreed that we need not to get involved in every project. He was satisfied that we selected some major projects and made them distinctive features of our school. I also communicated to the teachers: "The principal expects quality performance and outcomes because the parents and community hold him accountable for the school performance"....the teachers were very cooperative.

John prioritized the needs of teachers and ensured that their needs were met. Instead of increasing the teacher workload, John coordinated technology integration with their school-based curriculum development. He encouraged the teachers to consider technology when developing and implementing their school-based curriculum. He worked with them on any technical problem. Importantly, John assumed the responsibility for reporting on the outcomes of projects in order to minimize the time and energy expended by the teachers. Thus, teachers did not view technology integration as an added burden.

.....As administrators, we had to ensure that technology integration would reduce the teaching load of teachers rather adding extra work....I told them: "When you try technology integration, you should think of how to integrate technology into your curriculum together....Don't worry about the outcomes." I encouraged them not to worry about outcomes because they would have been worried about the work needed.... I took care of the final reports.

4. Discussions

Changes in an information society often require school principals to learn the art of technology leadership. Technology leadership requires not only technological understanding, but also cultural understanding, and it reflects what an organization is and should be (Annunzio, 2001). A technology leader must find new ways to motivate people, to communicate vision, and to create a culture. Hence, principals must have the flexibility needed to facilitate the transformation of school culture. They must recognize the potential of IT and must play a proactive role in the process of innovative technology diffusion (Anderson & Dexter, 2005; Creighton, 2003; Flanagan & Jacobsen, 2003; Yuen, et al., 2003).

4.1 Commitment of Principals to Equipment Acquisition is Essential for Technology Implementation

Previous studies show that lack of access to technology is a barrier to technology integration by teachers (Ertmer, 1999; Norris, Sullivan, Poirot, & Soloway, 2003). The availability of working technology is crucial to the initial implementation of technology (Kopcha, 2010). Data analysis results showed that both principals valued technology in education and that both knew the importance of technology acquisition. Hence, they prioritized technology acquisition. As previous literature indicates principals play a key role in technology acquisition because they often make the final budget decisions (ChanLin, Hong, Horng, Chang & Chu, 2006; Dawson & Rakes, 2003; Fullan, 2007). The findings of this study support previous findings that investment in technology in schools depends on to what degree a principal values technology (Flanagan & Jacobsen, 2003; Rogers, 2000). Also, the commitment of Bob and Peter to seeking technology-acquisition funds demonstrated their determination to realize their vision of school technology. This finding agrees with reports in the literature that resourceful principals make the most of their “entrepreneurial networking” to acquire the technology needed to realize their vision for school IT (Flanagan & Jacobsen, 2003).

4.2 The Vision for Learning Held by Principals Increased the Use of Technology by Teachers

The analytical results of this study indicate that the vision of technology for learning held by Peter that enabled the school to advance from technology implementation to technology integration. The use of technology in the classroom increased when Peter was principal. This finding agrees with Ertmer (1999) and Larson, Miller, & Ribble (2010) that technology integration requires more than simply technology acquisition. While expending resources on technology, school principals must have confidence that teachers can use technology efficiently to meet the needs of students (Larson, et al., 2010). The intention of principals to improve learning through technology strengthens the effective use of technology (Hayes, 2006). The finding also echoes the claims in the literature that technology integration is not scalable or sustainable unless the teachers and principal have a shared vision for technology integration based on an understanding of its power and potential for learning (Afshari, Bakar, Luan, Foui, & Samah, 2007; Anderson & Dexter, 2000, 2005; ChanLin et al., 2006; Eib, 2001; Flanagan & Jacobsen, 2003; Gosmire & Grady, 2007; Hew & Brush, 2007; Smarkola, 2008; Yuen, et al., 2003).

4.3 Principal's Responsive Support Encourages Teachers to Experiment with IT

Previous studies indicate that principals are responsible for financial infrastructure support and must empower teachers to experiment with the innovative teaching practices enabled by IT (Rogers, 2000; Webber, 2003). The unavailability and inaccessibility of needed technology may frustrate teachers and discourage them from using technology (Ertmer, 1999; Rogers, 2000). Flanagan & Jacobsen (2003) pointed out that the major challenge for principals is creating an environment in which teachers can explore and experiment with technology in meaningful, challenging, and authentic ways. Means (2010) suggested that principals must support teachers by allowing them to access necessary technology for instruction. The data analysis results in this study clearly show that Peter's practical responsive support not only conveyed a clear vision to the teachers, it also unleashes teachers' creativity needed for innovative teaching with IT. This finding is consistent with the assertion of ChanLin et al. (2006) that teachers are encouraged to take the initiative in integrating technology when their school principals are supportive.

4.4 Empowerment Catalyzes Technology Integration

The principal is a key figure in the transformation of school culture. Data analysis results showed that the process of establishing DWAT was a milestone for teacher empowerment by Peter. The power-sharing behavior by Peter also communicated to teachers that, as a principal, he respected their autonomy by giving up some control. According to Rinehart, Short, Short, & Eckley (1998), teacher empowerment depends on the willingness of the principal to overlook self-interest for the benefit of the school. Teacher empowerment is defined as administrative power sharing that allows teachers to control critical decisions (Sweetland & Hoy, 2000). Peter moved the school culture toward teacher empowerment by accepting the teachers' decisions. This finding corresponds with previous literature that culture formation is tied to principal leadership (Flanagan & Jacobsen, 2003). The substantial participation of classroom teachers is crucial for innovative change in any school (Lambert, 2002). The finding also supports the view by Wallace (2008) that any school is capable of transformation if the principal is willing to abandon self, tradition, and the status quo. As Watson & Fristrom (1990) claimed, administrators can readily catalyze school change if they empower their teachers.

4.5 Empowering Right Person to Be Technology Leader Facilitate Technology Integration

Data analysis also shows that Peter empowered John to be the technology leader at Victoria. By listening to John and taking his advices, Peter strengthened his positive relationship with the teachers. This finding supports Wallace (2008), sincere advice from subordinators enables principals to look inside and address overlooked issues which can grow into bigger problems. All principals struggle with accountability issues (Wallace, 2008) because they are held accountable for the effectiveness of their schools (Rinehart, et al., 1998). Because of Peter's empowerment, John can balance the accountability of the principal for school effectiveness with the need to maintain a reasonable teacher workload.

Wallace (2008) warned, some principals are so busy trying to be a “principal” that they forget how to be a good leader who must do what is best for the students and the teachers. John convinced Peter that sometimes, less is better. Thus, the teachers were highly cooperative. This finding supports the claim by Pfeffer (1998) that an organization can succeed only if its people are empowered and respected because people are not just workers in the organization--they are the organizational assets. This finding also corresponds to with reports that school culture is important to the effectiveness of technology use by teachers (Flanagan & Jacobsen, 2003; Rogers, 2000). Leadership is not a matter of control; empowerment gives the school principal a network of support which can become a powerful force for positive change (Wallace, 2008).

The above discussions demonstrate that the action by Peter to empower John as the technology leader was crucial to the success of technology integration at Victoria. John was talented in both technology and leadership, which significantly contributed to the health of school culture by creating a flexible and supportive environment for the teachers. As Maxwell (2005) noted, talented employees can multiply organizational effectiveness if empowered. This finding is consistent with Spreitzer, De Janasz, & Quinn’s study (1999), who found that a middle-level leader with an empowered mindset could exhibit change-oriented leadership behaviors when interacting with subordinates. This study also agrees with studies showing that, to achieve successful technology integration, principals must foster potential technology leaders by empowering them (ChanLin et al., 2006; Dawson & Rakes, 2003; Gemunden, Salomo, & Huzle, 2007; Staples et al., 2005). In sum, to be effective as technology leaders, a principal need not necessarily be technology-savvy. The essential of a principal leadership is to identify and to empower those who are potential leaders and experts in technology integration for quality learning.

5. Conclusion

This study theoretically and empirically identified a set of positive leadership practices exhibited by the two principals, which facilitated technology integration in a Taiwan elementary school. The key findings of the study are as follows: 1) the commitment of principals to responsive technology-acquisition is crucial to technology integration; 2) a clear **shared vision of technology for learning** can engage teachers in integrating technology in classroom; 3) teacher empowerment catalyzes the technology integration process. The results of this study, however, are limited by its use of a single method of data collection from a single informant. Furthermore, the study analyzed only one school, which limits the generalization of the research conclusion. Despite its limitations, the results of this study do reveal the key elements whereby school principals can effectively implement technology integration. In future works, a comparative case-study design is highly recommended to compare schools of different sizes and in different locations.

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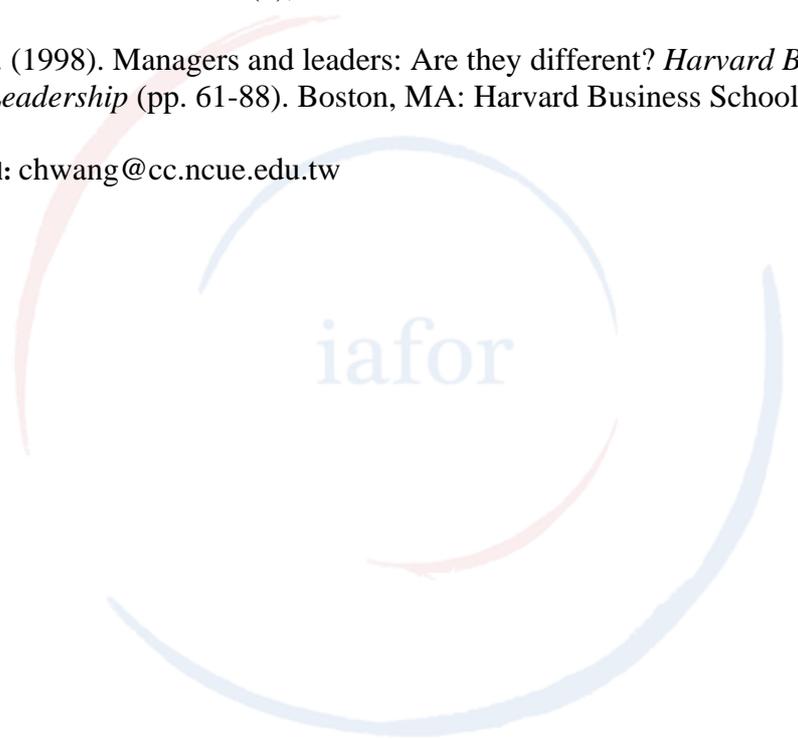
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The logo for the International Association for Educational Research (IAFOR) is centered on the page. It features the word "iafor" in a lowercase, sans-serif font. The text is surrounded by several overlapping, curved lines in shades of blue and red, creating a circular, dynamic effect.

Student Loans, Rising College Tuition and the Social and Economic Effects in the United States

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Abstract

Government involvement in student loans allowed many young Americans to go into debt and live beyond their means. Implied promises of high paying jobs in the future that would theoretically create an earning potential that could make student loan indebtedness seem like a rational investment. The U.S. Government's goal of "college for all" even for those who were better off without a college degree was certain to have dire consequences. (Dwyer, Hodson 2012) In the process of creating additional demand for higher education, the American government overlooked the most important thing that gave higher education value; scarcity. A person with a college degree in the past made more money than a person without it because a college degree was scarce therefore the demand for it was high. Prospective employers were willing to pay more for college educated employees. Today it can be argued that a 4 year college degree is worth less than a high school diploma was in the 1950's. Another unintended result of government subsidized loans is that young adults who are not sure what to study will often choose the easiest major or something they think they will academically excel at ignoring its utility in the job market. Government supported student loans are acting as a barrier and are preventing young Americans from comfortably entering the work force free of debt. Increasingly, only after graduating and incurring large student loan debt do recent college graduates realize what they have studied has little or no practicality in the current job market.

Keywords: Student Loans, Student Debt, Social Consequences, Economic Consequences

Introduction

In the past colleges in the United States were affordable. Academically qualified students could pay their tuition while working part time and attend college full time and graduate free of debt. College graduates did not carry the burden of large debt before securing a job and could take time and choose career fields wisely. In 1965, the U.S. government decided it wanted to become more involved in higher education. “In 1965 the U.S. Congress enacted the Guaranteed Student Loan Program, (GSLP) later called Stafford loans.” (Beaver, 2008) The goal of the GSLP was to eliminate the role of due-diligence conducted by private lending institutions and offer students loans to prospective students regardless of their financial or future ability to pay. If anything went wrong and the borrower could not pay the lender, the government would assume the debt.

The government’s rationale for becoming directly involved in student loans was its belief that if college was a good thing and people could make more money and pay more taxes there should be more of it and it would be a win-win situation for all parties involved. The college educated population would be more skilled, earn more money and have a better life. More importantly, the American working class would be able to pay more taxes and serve the government better by enriching their life-styles. The problem of student debt further escalated when American universities that wanted to raise their tuition fees started lobbying the government.

Whenever an outside force, such as government, encourages or demands that financial institutions make loans for reasons that may have nothing to do with the actual likelihood of repayment, higher degrees of financial loss are almost always inevitable. Over the past few decades because of many government instigated changes, student debt exceeded credit card debt and surpassed \$1 trillion in 2012 (Ionescu, 2009) with the average student debt being over \$29,400 in 2012 according to The Project on Student Debt Website (2014). To put that into perspective, student debt in 2001 was \$25 billion just 1/40th the size it was in 2012. (Ionescu, 2009) Carrying the enormous burden of high debt causes many social and economic problems because a heavily indebted person can’t survive on his/her own without a high income.

His or her choices become limited and dependency on government benefits or parents often becomes a necessity. Life changing decisions are postponed or delayed indefinitely further complicating society as a whole. Indebted unemployed young people often don’t get married, have children, buy a home or car and of course don’t pay taxes. An ever growing group of Americans not paying taxes also should be cause for worry for America’s foreign lenders. Foreign purchasers of U.S. debt expect to be paid in full one day in the very distant future. Foreign purchasers of U.S. debt need to weigh the consequences of further investment and loans to the United States considering as time goes by, there will be a smaller pool of people paying taxes just as liabilities such as Medicare and social security requests increase government costs. This paper explores government involvement in student loans, its effects and suggests solutions to it before it becomes another full-blown crisis that will require another very costly taxpayer bailout.

1. Effect of Guaranteeing Student Loans

The cost of college tuition has risen every year in spite of the financial crisis. One might wonder how this could be possible with the U.S. economy in such bad financial condition and unemployment high. Universities play a role in the student loan crisis by lobbying the government. Of the top 10 campaign contributors to the 2008 Obama Presidential Election, three were private universities. In fact, the top campaign contributor to the Obama election campaign was University of California contributing more than \$1.8 million according to the statistics from Open Secrets Website (2014). It is widely known that campaign contributions are not in effect donations; they come with strings attached. Consider the following: investment banks Goldman Sachs, Citigroup and JP Morgan were also in the list of top 10 campaign contributors and they all received multibillion dollar bailout money from the government during the financial crisis. Even in times of financial crisis, financial contributions to political campaigns by private sector participants can help ensure an organization's financial survival and guide it to prosperity with the use of tax payer money.

While campaign contributions certainly contributed to the loan crisis, the U.S. government's direct involvement in federal and private student loans is a much more serious problem. The government decided to pay subsidies to insure lenders have funds to cover borrowers who default on their loans. Up until March 26th 2010 the Federal Family Education Loan Program (FFELP) allowed private lenders to make federally guaranteed student loans to both parents and students. According to the statistics from US Census Bureau (2013), forty percent of Americans over age 25 had associate or bachelor's degrees in 2011. The government involvement in higher education via guaranteed student loans has severely distorted supply and demand ratios. The supply of college educated Americans greatly exceeds the demand. The increased amount of Americans attending college distorts the price of a college education by artificially increasing its demand while at the same time, a larger pool of college graduates will be competing for the same jobs pushing down the price prospective employees will be willing to pay its future college educated employees. The cost of higher education is outpacing the financial gains of having a college degree. "Between 1993 and 2005 the college wage premium rose by 27% while real tuition and fees at public and private four-year colleges rose by 63% and 43% respectively." (Rothstein, 2011)

The government's underwriting of student loans has eliminated the need for private lending institutions to conduct due diligence on their borrowers before approving college loans. If a student defaults on his or her student loan payments the government will reimburse the lender and then sell the loan to a collection agency sometimes for pennies on the dollar. The result was a huge lending moral hazard. For a short time, everybody was happy and the system appeared to work well. Students with inadequate funds for college tuition could simply borrow the money from the government or private lending institutions. Student loans that were easily attainable made colleges happy because they could raise tuition every year. Easy borrowing made the private lending institutions happy because their loans were guaranteed by the government and the more money they lent the higher the profits for them. Students were willing to take on large student loan debts because during the time of the economic boom cycles of the Nasdaq equity bubble followed by the real estate bubble, jobs were plentiful and graduating students could quickly find jobs and make

payments on their student loans. The amount of students borrowing money climbed to new highs and because of all of this borrowed money the cost of college tuition fees far outpaced the rises in home prices and all other costs included in the consumer price index.

CPI: College Tuition vs. U.S. Home Prices vs. CPI: All Items, 1978 to 2010

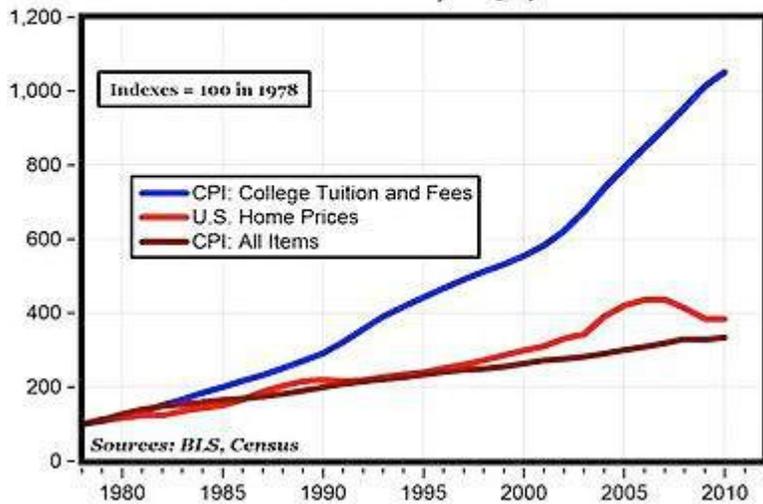


Figure 1. CPI: College tuition vs. U.S. home price vs. CPI: All items

For a time it seemed as if rising student debt was not a problem at all as long as high paying jobs were plentiful. By 2008 things had changed the real estate bubble burst and unemployment surged.



Figure 2. Unemployment rate of US

Source: U.S. Census Bureau

2. Effects of Reduced Lending Standards

Lending institutions were encouraged to grant any type of student loan as the process of lending was guaranteed to be profitable. Revenue maximization and profits for lending institutions are guaranteed “as they charge transaction fees and interest on loans that are underwritten by the federal government and so risk-free to the lender. (Shen & Ziderman,2009) If a student was unsure of what to study, he or she could pursue a degree in Liberal Arts. Liberal Arts degrees don’t pay as much as degrees requiring a high degree of technical skill. Examples of some Liberal Arts Degrees that currently have little usefulness in the current economy are: Leisure Studies, Art, Philosophy, Religion Women’s Studies, Camping, Art Therapy, Poetry, etc. Many students with Liberal Arts degrees find themselves working in the low paying service sector jobs such as: coffee shops, restaurants and retail sales. With official United States U6 unemployment at 15.9% in May 2012, average U.S. wages have been falling drastically since the start of the recession.

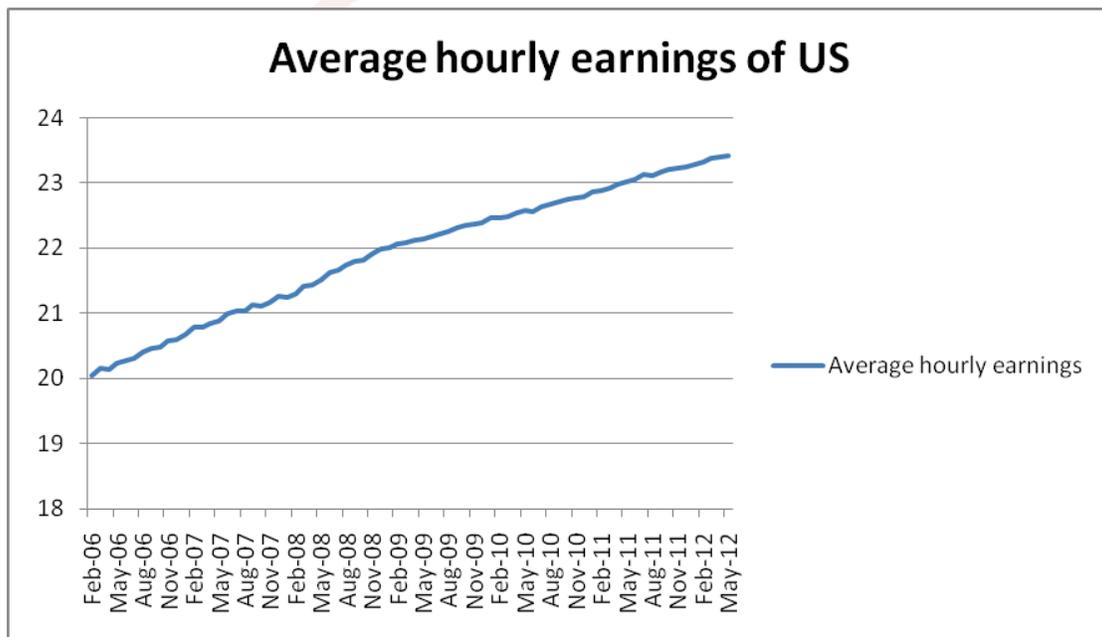


Figure 3. Average hourly earnings of US

Source: U.S. Census Bureau

With average earnings dropping so much, it soon became unaffordable for recent college graduates to support themselves. This resulted in an increasing number of people in their 20’s either never leaving home or moving back in to live with their parents. When children move back in with their parents, many life changing decisions are postponed. Many major purchases such as: buying a house or car can become delayed. Life changing decisions like getting married and having children are also delayed to some unspecified future date. The charts below show that the United States median age for first marriages have been steadily rising while home ownership for 25-34 year olds has been declining steeply in recent years.

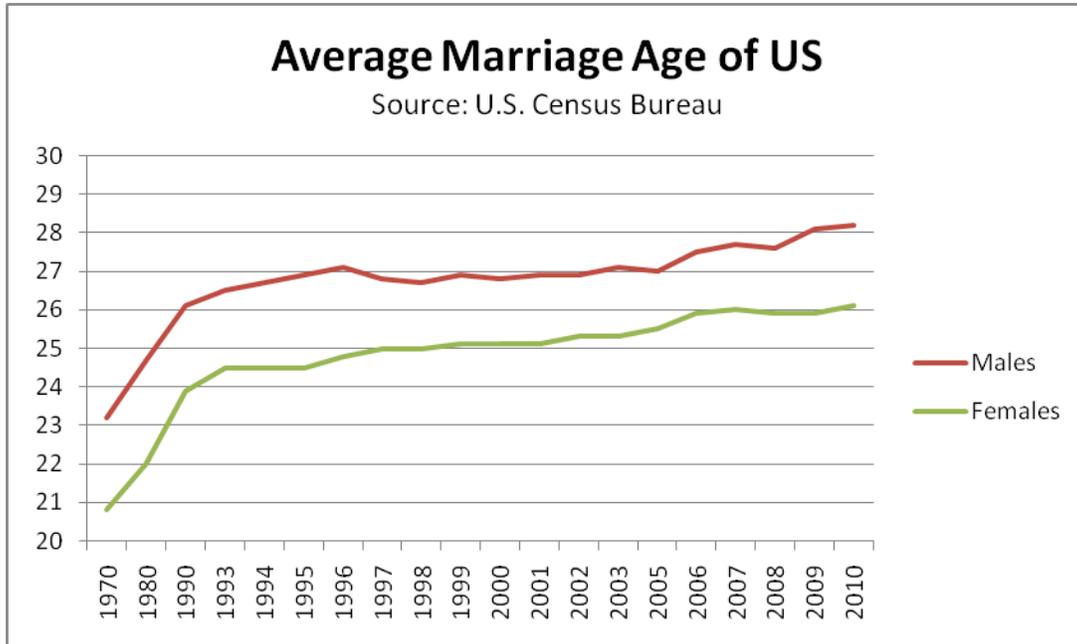


Figure 4. Average marriage age of US

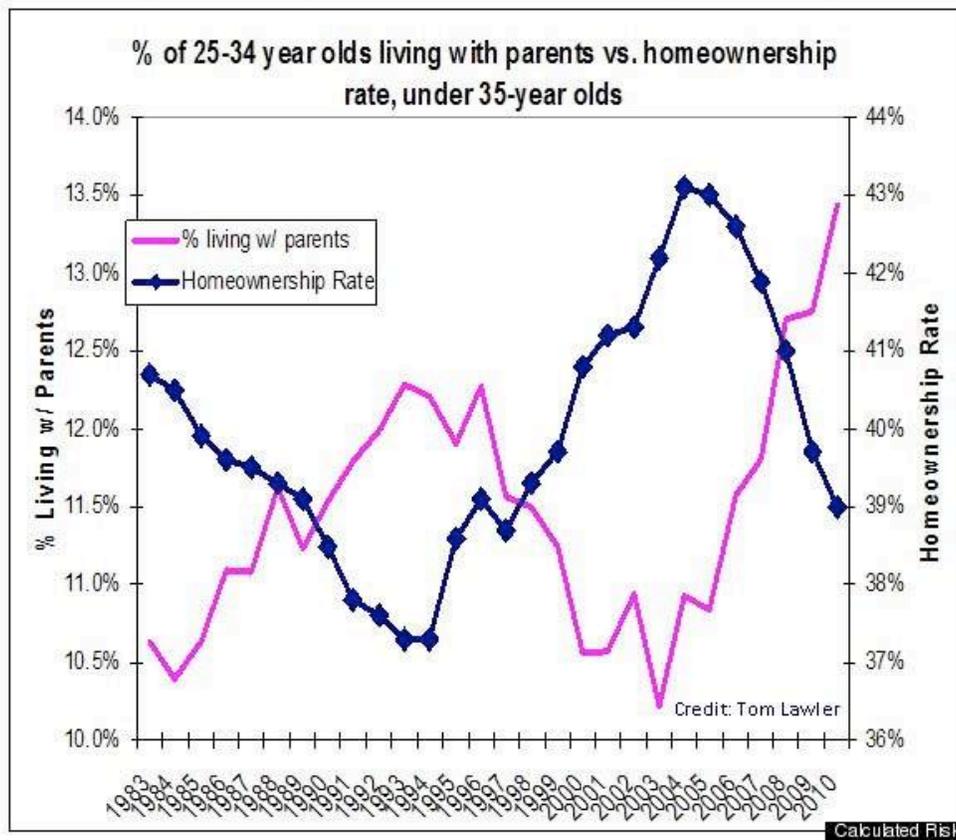


Figure 5. % of 25-34 years old living with parents vs. homeownership rate under 35-year olds

Recently, more loans have been cosigned by parents. When parents take out loans for children or co-sign loans they will find it more difficult to pay when they retire and

their incomes decline. Living on social security is difficult enough for most senior citizens. Student loan payments will make life much more difficult and put parents at risk of losing homes, cars and other assets.

2.1 The Explosion of Student debt and Disgruntled Citizen Response

In the 1970's large amounts of students were able to graduate from college with no student debt at all. In 2010, two-thirds of college seniors graduated with loans and they carried an average of \$25,250 in debt more than half the average GDP per capita. In comparison, in 2009 in Thailand "the average tuition fee per undergraduate degree is 180,000 Baht (\$6,000) and public universities are 72,000 Baht (\$2,200) per degree" amounting to just 20% and 25% GDP per capita in 2009 (Chapmana, Polsiri, Sarachitti, Sitthipongpanich 2010). American college graduates faced the highest unemployment rate for young college graduates in recent history at 9.1%. The vast majority of students struggling with student debt have very few ways of escaping it. Unlike a business loan, student loans are not applicable to bankruptcy protection. An additional consequence arises when an prospective applicant applies for a job at a company and the employer performs a credit check on the applicant. The applicant is often discriminated against and considered untrustworthy if it is found out that a prospective employee is delinquent on his or her student loan payments. This contributes to recent college graduates who are behind in payments to either work in dead-end low paying jobs or simply not work at all and receive government benefits such as welfare, food stamps and housing assistance. Others simply seek employment overseas where they won't be discriminated against.

Students have recently spoken out against government sponsored Sallie Mae, a private loan company that specializes in student loans, to try to end the \$50 monthly fee that students have to pay when they ask for forbearance. "Patricia Christel, a Sallie Mae spokesperson, said the company changed its policy on Feb. 3, so that the \$50 monthly fee goes toward the student's loans." "When customers experiencing temporary financial difficulty ask to suspend scheduled payments, we ask for a good-faith payment to emphasize the terms and long-term implications of their decision to use forbearance," Christel said. "We have been giving careful consideration to our policy for some time, and we are changing it to apply the good-faith payment to the customers' balance after they resume a track record of on-time payments."(The Project on Student Debt, 2014)

The wording from Sallie Mae was carefully scripted. Sallie Mae didn't say how long a track record of on-time payments was. Also that the \$50 monthly forbearance fee would be applied to the student debt after the "track record" had been set not at the actual time of the forbearance payment giving apt time for the entire loan to accrue interest.

2.2 Entitlement Mentality

Americans will eventually become accustomed to defaulting on student debt and finally start defaulting the way students did in Ghana. The student loan scheme in Ghana had even worse consequences than the U.S. Scheme. "During 11 years of its operation, the scheme faced technical and administrative difficulties and became indebted to the Ghana Commercial Bank, a total of c185,000 (\$375,560) owed by

students. Of this, less than c185,000 (\$2,074) was paid.” (Atuahene, 2008) more young Americans graduate from college with increasingly large amounts of debt and limited job opportunities; they will increasingly look to the government for financial and living assistance. Americans will not distinguish from money earned and money from the government and eventually completely quit looking for work. A positive effect could be that children can have two stay at home parents to look after them.

2.3 Consequences for Other Nations

Foreign countries have invested trillions of dollars in U.S. debt under the incorrect assumption that it was a safe investment. The ability for the United States to pay its debt to foreign countries that rely on the capability of U.S. citizens to contribute large amounts of money to the domestic economy and subsequently pay large amounts of taxes to the government will be greatly diminished when fresh new groups of college graduates are not seeking employment. Young college graduates will quickly learn that it is much easier and more convenient for more and more college graduates to simply receive benefits from the government. The only choice the U.S. government will have is to continue to expand the U.S. money supply at faster and faster rates and devalue the purchasing power of the dollar.

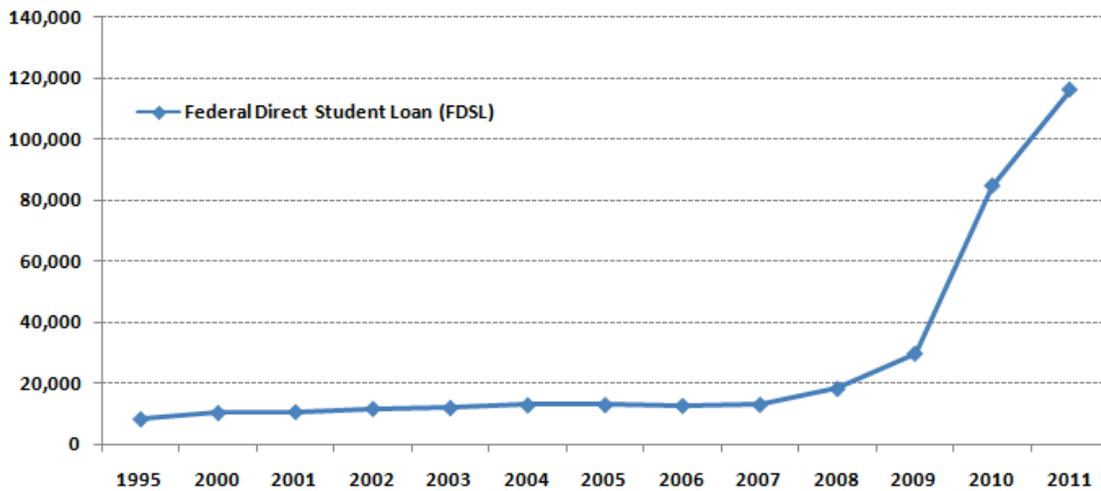
3. Solutions

3.1 Limit Government Involvement in Student Loans

The U.S. government will not readily admit that the lending moral hazard it created is in fact a major contributor to the still worsening student loan crisis. The first step to solving, or at the very least, reducing the problems caused by guaranteeing student loans is limiting government involvement in the process. A free market solution is needed. It is likely that if left to the free market, college tuition will come down. With the help of government, universities and lending institutions have been luring young inexperienced Americans into the student loan trap by offering soft loans that are ultimately borne by taxpayers. “Lending conditions in virtually all government-sponsored loans schemes are softer on those on regular commercial loans and subsidies include: below-market interest rates on the loan, periods in which no interest is levied on outstanding debt, and repayments not linked to the rate of inflation (Belfield, 2013).

People that cannot afford to go to college and can't get loans from the free market should not be in college. The government needs to stop subsidizing student loans and stop creating moral hazards by guaranteeing all of them. “In the absence of insurance, private lending institutions are generally reluctant to lend without suitable collateral.” (Cigno, 2009) As a result, there will be less demand for college and under normal circumstances tuitions will fall as enrollment declines. Subsequently, the college premium employers pay will rise as the pool of college graduates will shrink. In essence the free market will solve the problem of the education bubble if the government is just willing to get out of the way. Recent actions by the U.S. government indicate that it has no intention whatsoever reducing its involvement in the student loan industry and letting college tuition fees fall. When the financial crisis struck in 2007, private lenders were forced to scale-back their lending for student loans. The government modified its role as loan guarantor and dramatically increased

its role in providing direct student loans through its Federal Direct Student Loans (FDSL) program.



Source: U.S. Census Bureau

Colleges have appreciated all of the extra demand for higher education created by the government and have rewarded them accordingly by paying much more tax. However, colleges probably won't like the reality of the fact that without the government created demand, they will have to become more affordable and start to lower tuition rates if they wish to try and maintain their current enrollment. If colleges oppose a decline in enrollment, a variety of spending cutbacks can be made which will enable colleges to reduce tuition rates. Much money can be saved by modestly lowering administrators salaries. "Currently, 31 university presidents receive more than \$1-million a year, including one who heads a public institution, E. Gordon Gee, of Ohio State. At Vanderbilt, where Gee previously served, 10 administrators are paid more than \$1-million, including one in health affairs who was paid \$5-million in his final year." ("The self-exam," 2011) We have been lead to believe that top talent comes at a cost, but that cost need not be \$1 million a year or more.

3.2 Allow Students to More Easily Discharge Student Loan Debt through Bankruptcy

There is an increasing sense of hopelessness among graduating college students saddled with an average of more than \$29,000 of student loan debt. Student loans are not included in the bankruptcy code. People with unsustainable mortgage payments or credit card debt can have a fresh start by declaring bankruptcy. Unsustainable student loans can't be discharged but the debtors can still declare giving up making their payments. When debt takes over the consequences are dire and include but are not limited to:

- Delays in buying a car or purchasing a home
- Postponement of marriage and childbirth for financial reasons
- Parents feel pressure to take out loans or otherwise help with payments
- Risk for parents who co-sign loans of losing homes, cars and other assets
- Little ability to discharge student loans in bankruptcy

- Inability to get credit cards or home or car loans
- Inability to rent a home because of high debt-to-income ratio
- Being forced to deal with private collection agencies in the event of default
- Having liens placed on bank accounts or property in a default
- Facing collection fees of 25% of amount owed in a default
- No statute of limitations on collection efforts
- Having wages garnished
- Possible loss of state-issued professional licenses
- Reduction of Social Security payments
- Seizure of tax refund

The above consequences increase the attractiveness for indebted students to become life-long welfare recipients. Recipients of welfare do not need credit cards because government issued Electronic Benefit Cards serve most of the essential functions of for profit credit card companies. Welfare recipients need not worry about the costs of raising children. The more children welfare recipients have, the higher the monetary benefits. Private collection agencies are not able to garnish welfare payments or charge collection fees. There will be no seizure of tax refunds as no income is earned. There is also no need to save any money for a down payment to buy house, as welfare recipients can benefit from government supplied low-cost housing.

Conclusion

Direct government involvement in student loans has allowed many Americans to attend college that under normal circumstances would not have. If young adults had not been steered into college and wooed by empty promises of great paying jobs, they would have found more practical employment elsewhere. Many young Americans could have learned a trade at minimal cost and gained employment in a more stable career field such as a baker, an electrician, or a plumber. These core jobs are recession-proof and make up the foundation of any country require much less study time, are more cost efficient, and are always in high demand. Even in a financial crisis, very few people will stop eating bread, consuming electricity in their homes or refrain from using the bathroom. Thanks to government involvement in student loans, too many young Americans were steered away from practical career fields and instead acquired the heavy burden of debt and attended college only to find out later that their expensive degree had little or no use as the interest payments and the principle on their student loans continued to accrue.

The student debt crisis is potentially a much more serious financial crisis than the Internet equity bubble or the real estate bubble. While a personal bankruptcy would ruin consumer credit for 7 years or more during the previous bubbles, the Student Loan Bubble offers no means of escape for its borrowers if high paying jobs that can allow loan repayment to be repaid or at the very least allow the borrower to service his/her debt. The quick fix for the stock market collapse was to dramatically lower interest rates from 5 percent to 1 percent. However instead of re-inflating the stock market bubble, the near interest-free money sparked real estate speculation. There will be no long-term solution to the student loan crisis without major reform in the U.S. higher education system. As long as the government continues its involvement in the student loan crisis, it will only worsen.

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Pre-Service Teachers Teaching Effectiveness: The Nueva Vizcaya State University Experience

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Abstract

In the world of teaching, teachers are constantly amazed by the ingenuity of their teaching; they learn to be imaginative and inventive; they make a difference in the lives of their pupils and they get so much unreserved affection, respect and love in return. Thus, teachers must guarantee to continue cultivating their learners, to uncover their potentials and to mold them as well-rounded citizens. This study ascertained the teaching effectiveness of pre-service teachers of the Nueva Vizcaya State University, Philippines. As a descriptive-correlation study, this paper presumed that the domains of teaching effectiveness which include the pre-service teacher's personality, lesson planning, content, teaching methods, classroom management, and questioning skills were associated to their demographic variables. The satisfactory teaching effectiveness in teaching methods of married pre-service teachers is attributed to the reality that they have wider responsibilities other than teaching. Their satisfactory display of teaching effectiveness in content and classroom management is highly associated with factors in the learning environment. Their significant teaching effectiveness in personality is connected to how the school factors influence them to be good models to their learners. Generally, they reflect a notable teaching effectiveness in questioning skills as they were properly mentored to be articulate in asking questions and in stimulating the higher order thinking skills of their learners.

Keywords: pre-service teachers, teaching effectiveness, teaching method, content, classroom management, questioning skills, lesson planning, teacher personality

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Introduction

Teaching is a rewarding vocation for those who can merge the scientific and artistic features of the profession. It is characterized by a demand for quality education, increasing racial and ethnic diversity among learners, and more instructional responsibility. Effective teaching is marked by teachers who have control of the knowledge base on teaching, can carry out a repertoire of best practices, have attitudes and skills needed for reflection and problem solving, and consider teaching as a lifelong process (Arends, 1988).

Preparing to be a teacher is a long and complex practice filled with excitement and challenge. It commences with the many early experiences one has with his parents and siblings and continues as he observes teachers through the formal classroom instruction. It concludes with professional training and teaching experiences that last a lifetime for those who choose teaching as a profession.

Article 1, Section 1 of the Commission on Higher Education Memorandum Order (CMO) #30 series of 2004 (Revised Policies and Standards for Undergraduate Teacher Education Curriculum) states that, to wit:

“Quality pre-service teacher education is a key factor in quality Philippine education. In the Philippines, the pre-service preparation of teachers for the primary and secondary educational sectors is a very important function and responsibility that has been assigned to higher education institutions. All efforts to improve the quality of education in the Philippines are dependent on the service of teachers who are properly prepared to undertake the various important roles and functions of teachers. As such, it is of utmost importance that the higher standards are set in defining the objectives, components, and processes of the pre-service teacher education curriculum.”

The New Teacher Education Curriculum (NTEC) stipulates that practice teaching is the most important experience in the pre-service preparation of future teachers. It is a 6-unit course offered to pre-service teachers who have completed the six (6) experiential learning courses. This course offers them the opportunity to experience actual teaching in the learning environment. They are required to display their abilities to effectively execute learning activities and evaluation in the classroom. Further, they are expected to experience all the features of full-time teaching responsibilities under the tutelage of a cooperating teacher (Vega, 2008).

Compliant to the above CMO, the Nueva Vizcaya State University, through its College of Teacher Education, offers the Bachelor of Elementary Education (BEE) program to cater to students who prefer to teach in the elementary level. Hence, the university maintains a functional partnership with the Department of Education (DepEd), Division of Nueva Vizcaya through a Memorandum of Agreement (MOA) for the deployment of the university's pre-service teachers in their experiential learning courses. After a MOA was signed, and approval for deployment was secured,

these pre-service teachers are positioned to the different districts and schools in full immersion.

Further, as the BEEd program of the university attained Level III re-accredited status in 2011 by the Accrediting Agency of Chartered Colleges and Universities of the Philippines (AACCUP), it needs to continuously meet the challenges of improving the curriculum and pedagogical skills and practices of the elementary teacher education students. This can be done through a closer look on the performance of its pre-service teachers during their internship as this would give hints on certain factors in their pedagogical performances that the university needs to improve on and dwell more in pedagogy before students enter the internship program.

This study sought to establish the teaching effectiveness of elementary pre-service teachers of NVSU Bayombong, Nueva Vizcaya. Specifically, the study ascertained the demographic profile of the pre-service teachers in terms of gender, civil status, district where cooperating school belongs, cooperating school assignment, grade level assignment, and teaching position of cooperating teacher; to establish the level of the pre-service teachers' teaching effectiveness in terms of teacher's personality, lesson planning, content, teaching methods, classroom management, and questioning skills; and, to ascertain the significant relationship on the level of the pre-service teachers' teaching effectiveness and their demographic profile.

Methodology

This research employed the descriptive-correlation study. The descriptive research describes, analyzes and interprets the conditions that presently exist. The correlation study determines the extent to which different variables are associated to each other.

This study was conducted at the College of Teacher Education of the university and in the different DepEd districts and elementary schools. The different cooperating schools with the corresponding districts and codes are reflected in Table 1.

Table 1. Distribution of pre-service teachers to the different districts and cooperating schools in DepEd, Division of Nueva Vizcaya

Districts	District Code	Cooperating Schools	School Code
Bagabag	District 1	Bagabag Central School	School A
Bayombong 1	District 2	Bayombong Central School	School B
		Bayombong South Elementary School	School C
		Busilac Elementary School	School D
		Bayombong West Elementary School	School E
Bayombong 2	District 3	Bonfal Pilot Central School	School F
		La Torre Elementary School	School G
		Masoc Elementary School	School H
		Sta. Rosa Elementary School	School I
		Solano 1	District 4
Solano East Central School	School K		
Solano 2	District 5	Solano South Central School	School L

This is a two-year study that utilized the elementary pre-service teachers who were assigned to have full immersion at the DepEd elementary schools as respondents. For the purpose of uniformity, 50% of the total population of pre-service teachers was taken from year 1 (n=37) and the other half was taken from the roster of pre-service teachers in year 2 (n=36).

The research instrument used in the study is a questionnaire with two parts. The first part consisted of the respondents' demographics. The second part is a standardized rating scale with indicators of pre-service teachers' teaching effectiveness (Experiential Learning Courses Handbook, 2009).

The pre-service teachers were evaluated by their Cooperating Teachers, Cooperating Principals, and Supervising Instructors during their first, second and final demonstrations, respectively. These ratings served as secondary data.

Descriptive Statistics such as frequency, percentage, mean and standard deviation were used to describe the demographic profiles of the pre-service teachers while inferential statistics such as the correlation procedures were used to determine the relationship of the identified variables. The 0.05 probability level was the critical point of reference used in this study.

Results And Discussions

Demographic Profile of Pre-Service Teachers

The BEED program of the university is dominated by female and single students. Majority of the pre-service teachers were assigned to have full immersion in the districts that are of close proximity to the university. The pre-service teachers were almost equally deployed to DepEd central and elementary schools that are within the 50-kilometer radius from the university. Majority of the pre-service teachers were given the privilege to teach at the intermediate level while the rest were deployed to teach at the primary level which indicates that they were prepared and honed to teach in all grade levels in the basic education. Many pre-service teachers were supervised by in-service teachers whose positions are Teachers 1 and 2, and Master Teachers 1 and 2 while few were coached and mentored by elementary grade teachers whose position is Teacher 3 which further reflect that pre-service were directed by teachers with varied teaching positions.

Level of Teaching Effectiveness of Pre-Service Teachers

Teacher's Personality. The pre-service teachers manifested an admirable teacher personality (overall mean=1.15). This reflects that they brought in the teaching-learning environment a well-rounded personality that motivates their learners to stay focused in the subject matter. This further indicates that they manifest a remarkable personality in the teaching environment as they were prepared to be living examples to their learners. And this may be associated with the belief being held by both the

faculty and students in the university that “oneself” is the best visual aid that he or she can offer to his or her pupils.

Lesson Planning. The pre-service teachers did excellently in their preparation of lesson plans (overall mean=1.12). This reveals that they organize their teaching well by selecting learning experiences that appropriately match the subject matter. Further, they prepare state-of-the art lesson plans that are relevant to the objectives of the lesson. This also manifests that they were taught to prepare their lesson plans efficiently and effectively by their pedagogy instructors. This could also be attributed to the proper guidance offered by their cooperating teachers and their being receptive to constructive criticisms from those who mentored them in pedagogy.

Table 2. Overall pre-service teachers’ teaching effectiveness

Teaching Effectiveness Indicators	Cooperating Teachers		Cooperating Principals		Supervising Instructors		Overall Mean & SD		Description
	Mean	SD	Mean	SD	Mean	SD.	Mean	SD	
Teachers’ Personality									
1. The teacher is neat and well-groomed	1.04	0.12	1.10	0.18	1.06	0.13	1.07	0.14	Outstanding
2. The teacher is free from mannerisms that tend to disturb the students' attention	1.15	0.23	1.18	0.2	1.14	0.2	1.16	0.21	Outstanding
3. The teacher's personality is strong enough to command respect and attention	1.18	0.23	1.24	0.28	1.1	0.18	1.17	0.23	Outstanding
4. The teacher shows dynamism and enthusiasm	1.19	0.26	1.26	0.29	1.16	0.21	1.20	0.25	Outstanding
5. The teacher has well-modulated voice	1.15	0.24	1.23	0.28	1.12	0.21	1.17	0.24	Outstanding
Sub-mean	1.14	0.22	1.20	0.25	1.12	0.19	1.15	0.22	Outstanding
Lesson Planning									
1. Lesson Plan is well prepared	1.08	0.17	1.14	0.19	1.12	0.17	1.11	0.18	Outstanding
2. There is congruence between objective and subject matter	1.07	0.16	1.14	0.2	1.06	0.13	1.09	0.16	Outstanding
3. There is congruence between objective and teaching procedure	1.12	0.23	1.18	0.21	1.1	0.15	1.13	0.2	Outstanding

4. there is congruence between objective and available test and measure	1.13	0.2	1.18	0.23	1.1	0.15	1.14	0.19	Outstanding
5. there is congruence between objective and assignment	1.1	0.18	1.17	0.2	1.07	0.13	1.11	0.17	Outstanding
Sub-mean	1.1	0.19	1.16	0.21	1.09	0.15	1.12	0.18	Outstanding
Content									
1. the teacher demonstrates in-depth knowledge of the subject matter	1.18	0.26	1.3	0.32	1.15	0.19	1.21	0.26	Outstanding
2. the teacher is able to relate lesson to actual life situation	1.21	0.3	1.32	0.28	1.15	0.2	1.23	0.26	Outstanding
3. the teacher keeps abreast of new ideas and innovation in the field	1.23	0.3	1.37	0.29	1.17	0.19	1.26	0.26	VS
4. the teacher gives sufficient and concrete examples to create meaningful learning experience	1.2	0.3	1.33	0.28	1.15	0.18	1.23	0.25	Outstanding
Sub-mean	1.21	0.29	1.33	0.29	1.16	0.19	1.23	0.26	Outstanding
Teaching Methods									
1. The methods used were suited to the needs and capabilities of the students	1.14	0.23	1.25	0.3	1.12	0.18	1.17	0.24	Outstanding
2. The teacher was creative enough to adopt his method to the students' capabilities	1.15	0.23	1.29	0.33	1.14	0.21	1.19	0.26	Outstanding
3. Instructional materials were used adequately to illustrate the lesson	1.11	0.22	1.25	0.31	1.09	0.15	1.15	0.23	Outstanding
4. The teacher made effective use of the available test and measure after teaching	1.14	0.23	1.31	0.31	1.11	0.15	1.19	0.23	Outstanding
Sub-mean	1.14	0.23	1.28	0.31	1.12	0.17	1.18	0.24	Outstanding
Classroom Management									

1. The teacher had a systematic way of checking attendance	1.11	0.24	1.21	0.29	1.05	0.13	1.12	0.22	Outstanding
2. The teacher had a systematic way of checking assignment/homework/ agreement	1.12	0.22	1.19	0.26	1.08	0.14	1.13	0.21	Outstanding
3. The teacher had a systematic way of checking practice exercises	1.11	0.22	1.22	0.28	1.09	0.15	1.14	0.22	Outstanding
4. The teacher had a systematic way of checking group works / projects	1.11	0.21	1.22	0.24	1.1	0.17	1.14	0.21	Outstanding
5. The teacher had a systematic way of checking passing in and out of the room	1.21	0.26	1.22	0.29	1.07	0.14	1.17	0.23	Outstanding
6. The teacher had a systematic way of checking correcting, distributing and collecting paper	1.16	0.24	1.26	0.32	1.1	0.15	1.17	0.24	Outstanding
7. Order and discipline were present in the classroom	1.24	0.28	1.3	0.32	1.11	0.2	1.22	0.27	Outstanding
8. Visual aids were within easy reach of the teacher during his teaching	1.1	0.19	1.19	0.25	1.06	0.17	1.12	0.2	Outstanding
Sub-mean	1.15	0.23	1.23	0.28	1.08	0.16	1.15	0.23	Outstanding
Questioning Skills									
1. The teacher's questioning skills stimulate discussion in different ways as:... probing for learner's understanding	1.2	0.28	1.32	0.3	1.18	0.23	1.23	0.27	Outstanding
2.helping students articulate their ideas and thinking process	1.25	0.28	1.35	0.29	1.21	0.24	1.27	0.27	VS
3. ...promoting risk-taking and problem solving	1.28	0.29	1.38	0.26	1.22	0.21	1.29	0.25	VS
4. ...facilitating	1.18	0.26	1.33	0.28	1.14	0.21	1.22	0.25	Outstanding

factual recall										
5. ...encouraging convergent and divergent thinking	1.28	0.31	1.41	0.26	1.23	0.23	1.31	0.27		VS
6. ...stimulating curiosity	1.25	0.29	1.36	0.28	1.19	0.21	1.27	0.26		VS
7. ...helping students to ask questions	1.27	0.32	1.4	0.27	1.24	0.22	1.30	0.27		VS
Sub-mean	1.24	0.29	1.36	0.28	1.20	0.22	1.27	0.26		VS
Overall Mean	1.16	0.24	1.26	0.27	1.13	0.18	1.18	0.23		Outstanding

Legend:	1.00	Outstanding
	1.25-1.50	Very Satisfactory
	1.75-2.00	Satisfactory
	2.25-2.50	Fair
	2.75-3.00	Needs Improvement

Content. The pre-service teachers manifested an excellent performance in content (overall mean=1.23) This may be attributed to how they were taught by their pedagogy teachers to be consistent in bringing learning experiences that have direct bearing with the lesson. Additionally, interns were constantly reminded to connect the subject matter with the learner's experiences to make learning more meaningful and interesting.

Teaching Methods. The pre-service teachers displayed a remarkable performance in teaching methods (overall mean=1.18). This reflects that they persistently adapt teaching strategies that connect the objectives of the lesson to the needs, abilities and interests of the pupils. Further, the pre-service teachers employ a variety of instructional technology to stir up the thoughts and imagination of the learners.

Classroom Management. The pre-service teachers were evaluated outstanding (overall mean=1.15) in managing classrooms. This indicates that they are excellent in planning and executing procedures that help get things started quickly and surely as well as in setting up rules that reduces disruptions and guarantee safety.

Questioning Skills. The pre-service teachers were evaluated very satisfactory in their art of questioning (overall mean=1.27). This signifies that they are better in building the higher-order thinking skills of their learners. Further, they demonstrate an approach of asking questions that lead to the development and understanding of the lesson.

Overall. The teaching effectiveness of the pre-service teachers was rated outstanding (overall mean=1.18). Findings indicate that they brought in the teaching-learning environment a well-rounded personality that motivates their learners to stay focused in the subject matter; they organize their teaching well by selecting learning experiences that appropriately match the subject matter; they were constantly reminded to connect the subject matter with the learner's experiences to make learning more meaningful and interesting; they persistently adapt teaching methods that connect the objectives of the lesson to the needs, abilities and interests of the

pupils and employ a variety of instructional technology to stir up the thoughts and imagination of the learners; they are excellent in planning and executing procedures that help get things started quickly and surely as well as in setting up rules that reduce disruptions and guarantee safety; and they are geared towards stimulating the minds of the learners to become imaginative and productive in their higher-order thinking skills.

Relationship between the Pre-Service Teachers' Demographic Profile and their Teaching Effectiveness

Cooperating Teachers. The significant relationship between Civil Status and the pre-service teachers' teaching effectiveness in terms of Teaching Method as reflected by the correlation coefficient value of $r = 0.298$ indicated that those who are married garnered significantly lower level of teaching effectiveness.

Table 3. Correlation matrix showing the result in testing the relationship on the extent of the pre-service teachers' teaching effectiveness as assessed by the cooperating teachers and their demographic variables

Demographic Variable		Personality	Lesson Planning	Content	Teaching Methods	Class Mgt	Questioning Skills
Civil status	Corr. Coefficient	.130	.209	.186	.298*	.145	-.146
	Sig. (2-tailed)	.273	.076	.115	.010	.221	.318

*Correlation is significant at the 0.05 level (2-tailed).

Findings reveal that married pre-service teachers showed a lower level of teaching effectiveness in the area of teaching methods while their counterparts manifested an excellent teaching effectiveness. This could be ascribed to the reality that married interns have other bigger concerns than teaching.

The findings of Covino and Iwanicki (1996) supports the above results when they concluded that effective teachers, regardless of civil status, are adept in utilizing a range of teaching strategies, and they demonstrate more depth and differentiation in learning activities. Stronge and Hindman (2003) also articulated that effective teachers promote higher learning gains by affording instruction that meets learner needs through the use of techniques such as guided practice, hands-on learning, questioning, problem-solving, and feedback.

Cooperating principals. The significant relationship between Cooperating School Assignment and the pre-service teachers' teaching effectiveness in terms of Content reflected a correlation coefficient value of $r = -0.233$ indicating that students whose cooperating school assignments were in Schools E, F and G garnered significantly lower level of teaching effectiveness in learning content.

Table 4. Correlation matrix showing the result in testing the relationship on the extent of the pre-service teachers' teaching effectiveness as assessed by the cooperating principals and their demographic variables

Demographic Variables		Personality	Lesson Planning	Content	Teaching Method	Class Mgt	Questioning Skills
Cooperating school assignment	Corr. Coefficient	-.229	-.142	-.233*	-.224	-.243*	-.211
	Sig. (2-tailed)	.051	.230	.047	.056	.038	.073

*Correlation is significant at the 0.05 level (2-tailed)

Likewise, the significant relationship between cooperating school assignment and the pre-service teachers' teaching effectiveness in terms of classroom management reflected a correlation coefficient value of $r = -0.243$ indicating that those whose cooperating school assignments were in Schools E, F and G garnered significantly lower level of teaching effectiveness in managing classrooms.

Findings reveal that the teaching effectiveness of pre-service teachers in terms of content and classroom management is influenced by their cooperating school assignment. This indicates that those who were deployed in Schools E, F and G demonstrated lower level of teaching effectiveness in content and classroom management. This further indicates that their teaching effectiveness may be affected by many internal and external factors of cooperating school.

Covino & Iwanicki (1996) stressed that whatever factors there may be in the learning environment, effective teachers consistently nurture a positive climate by setting and reinforcing clear expectations throughout the school year particularly at its beginning. Additionally, Cruickshank & Haefele (2001) found out that the classrooms of more experienced teachers are better organized around routines and plans for handling problems than are those of rookie teachers.

Morine-Dersheimer (1989) also clarified that classroom variety requires teachers to craft adaptations in their teaching plans to contain the educational needs of individual learners and thus sustain the learning of all pupils. Variations such as explicit activities intended to support learner's manifestations of feelings, opinions and personal experiences linked to the subject matter can accommodate individual variation, celebrate multiplicity, and add to better pupil outcome. These experiences allow teachers to modify their instructions to realize a better fit for all learners.

Stronge & Hindman (2003) further concluded that effective teachers acquire skills and approaches that assist them establish and sustain a safe, orderly, and dynamic environment. Their classrooms commonly display proactive discipline, efficient procedures and routines and multitasking. They further expressed that effective teachers set priorities, plan lessons, distribute time and set up high expectations for pupil learning and behavior. Effective teachers develop clear goals for pupil outcome

and associate classroom activities to these goals. They make the most of instructional time through limited disruptions and smooth transition. They further create conditions in which pupils can succeed and feel secured in taking academic risks.

Supervising Instructors. The significant relationship between District where cooperating school belongs and the pre-service teachers' teaching performance in terms of Personality as reflected by the correlation coefficient value of $r = -0.278$ indicated that pre-service teachers who were deployed in District 1 and District 5 garnered significantly higher level of teaching effectiveness in teacher personality.

Further, the significant relationship between Cooperating school assignment and the pre-service teachers' teaching effectiveness in terms of Personality as reflected by the correlation coefficient value of $r = -0.278$ indicated that those who were deployed in School A garnered significantly higher level of teaching effectiveness in teacher qualities.

Table 5. Correlation matrix showing the result in testing the relationship on the extent of the pre-service teachers' teaching effectiveness as assessed by the supervising instructors and their demographic variables

Demographic Variables		Personality	Lesson Planning	Content	Teaching Method	Class Mgt	Questioning Skills
District where cooperating school belongs	Corr. Coefficient	-.278*	-.201	-.182	-.224	-.217	-.157
	Sig. (2-tailed)	.017	.088	.123	.056	.065	.185
Cooperating school assignment	Corr. Coefficient	-.245*	-.192	-.149	-.179	-.153	-.179
	Sig. (2-tailed)	.037	.103	.209	.129	.196	.130

*Correlation is significant at the 0.05 level (2-tailed)

Findings reveal that the teaching effectiveness of the pre-service teachers in the area of teacher's personality is influenced by the district where cooperating school belongs and their cooperating school assignment. These indicate that those who were deployed in District 1 and District 5 and School A manifested significantly higher level of teaching effectiveness in teacher's personality. The results may be due to how the school factors such as cooperating teachers, principal and facilities motivate and influence them to be considerate, caring, prim and proper so as to be good models to their learners.

To support, Stronge & Hindman (2003) concluded that effective teachers display compassion and equality in teaching. They reveal a positive outlook about life and teaching. They are reflective thinkers who exhibit high expectations for themselves and their learners.

Overall teaching effectiveness. The significant relationship between District where cooperating school belongs and the pre-service teachers' overall teaching effectiveness in terms of questioning skills as reflected by the correlation coefficient value of $r = -0.238$ indicated that students who were deployed in District 1 and District 5 garnered significantly higher level of teaching effectiveness in terms of Questioning Skills.

Table 6. Correlation matrix showing the result in testing the relationship on the extent of the pre-service teachers' overall teaching effectiveness as and their demographic variables

Demographic Variables		Personality	Lesson Planning	Content	Teaching Methods	Class Mgt	Questioning skills
District where cooperating school belongs	Corr. Coeff. (2-tailed)	-.174	-.170	-.198	-.223	-.230	-.238*
	Sig.	.141	.151	.093	.058	.051	.043

*Correlation is significant at the 0.05 level (2-tailed)

Findings reveal that the teaching effectiveness of the pre-service teachers in the area of questioning skills is influenced by the district where cooperating school belongs. This indicates that those who were deployed in District 1 and District 5 manifested higher level of teaching performance in as much as questioning skills is concerned. This could be ascribed to how remarkably the pre-service teachers were mentored by their resource teachers coupled with their continuous desire to be articulate in asking questions and in stimulating the higher order thinking skills of their learners. Additionally, those who were deployed in these districts may be considered as the "cream of the crop" of their batch.

Regardless of any factors, Wenglinksy (2002) concluded in his study that teachers with greater subject-matter knowledge tend to ask higher-level questions, involve students in the lessons, and allow more student-directed activities. Further, Stronge (2007) stated that teachers with subject-matter knowledge provide more opportunities to involve students in meaningful discussions and student-directed activities.

Conclusions and Recommendation

Conclusions

Pre-service teachers bring in the learning environment a well-rounded personality that motivates their learners to stay focused in the subject matter; they organize their teaching well by selecting learning experiences that appropriately match the subject matter; they are constantly reminded to connect the subject matter with the learner's experiences to make learning more meaningful and interesting; they persistently adapt teaching methods that connect the objectives of the lesson to the needs, abilities and interests of the pupils and employ a variety of instructional technology to stir up the thoughts and imagination of the learners; they are excellent in planning and executing procedures that help get things started quickly and surely as well as in setting up rules

that reduce disruptions and guarantee safety; and they are geared towards stimulating the minds of the learners to become imaginative and productive in their higher-order thinking skills.

The agreeable teaching effectiveness in teaching method of married pre-service teachers is attributed to the reality that they have bigger responsibilities other than teaching. Their reasonable demonstration of teaching effectiveness in content and classroom management is highly linked with the internal and external factors in the learning environment. Their remarkable display of teaching effectiveness in personality is attributed to how the district and school factors motivate and influence them to be prim and proper so as to be good models to their learners.

Generally, the pre-service teachers reflect a notable teaching effectiveness in questioning skills as they were properly mentored to be communicative in asking questions and in stimulating the higher order thinking skills of their learners.

Recommendations

University Administration and Curriculum Planners. Results of this study afforded a basis for curriculum enhancement as well as revisit of existing policies on admission and retention in teacher education programs in order to come up with stronger policies geared towards quality teacher education, quality teacher education graduates and better education for the Filipinos. Curriculum enrichment for teacher education programs must focus on meeting the diverse needs of students including that of the needs of pre-service teachers who have family responsibilities. Moreover, curriculum planners must consider giving more weight to Experiential Learning courses (from 1 unit to 3 units per Field Study course) to better equip the students with the necessary competencies they need as they enter the world of teaching.

University Professors and Supervising Instructors. Findings of the study presented feedbacks on the effectiveness of the use of teaching strategies and methodologies in the classroom in so far as the teaching of pedagogy to teacher education students is concerned. Pedagogy subjects must focus more, but not confined only, to the development of the classroom management skills of pre-service teachers. Further, communication skills development and the art of questioning must form part of an enrichment course to be offered to elementary teacher education students. Additionally, supervising instructors and faculty members of Teacher Education Institutions must strengthen the exposures in Field Study courses and internship programs of pre-service teachers by deploying them not only in public elementary schools but to include private schools. The tie-up between a TEI and a private school can be reinforced through a Memorandum of Understanding (MOU).

Department of Education (DepEd) Administrators and Cooperating Teachers. In the light of the findings of the study, weaknesses and strengths of pre-service teachers were revealed, hence, providing the DepEd people with data that help them provide better “mentoring” to pre-service teachers and neophyte teachers under their tutelage.

Pre-service Teachers. Findings of this study provided feedback on their teaching effectiveness which becomes a basis for keeping themselves informed of the latest trends of education and be updated through their attendance to continuing education

such as seminars, conferences and training as well as membership to professional organizations once they enter the teaching profession.

Future researchers. Further study must be done to determine other factors that contribute to the effective teaching of pre-service teachers using triangulation and or other research methodology.



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Using Bioloid Robots as Tangible Learning Companions for Enhancing Learning of a Semaphore Flag-Signaling System

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Abstract

The tangible learning companion (TLC) with anthropomorphic and tangible characteristics is expected to enhance learner's attention and motivation to increase learner's learning performance. Thus, this paper uses a humanoid robot as a TLC to assist learners to participate in Semaphore Flag-signaling System (SFS) learning activities to explore their learning performance and cognitive load. The subject of this paper includes 76 students assigning to two experimental groups. Group 1 learned semaphore by watching videos on computer screen and group 2 used bioloid robot as TLC to learn semaphore. These two groups both used Kinect sensor as motion-sensing input device to do interactive learning with computer screen or bioloid robot. The results showed that these two group learners do not have significant difference on learning performance, but learners of group 2 who used bioloid robot have significant lower cognitive load than group 1. Therefore it can be concluded that TLC can effectively reduce learners' cognitive load and prevent their cognitive overloading during the learning process.

Keywords: Robot, Tangible Learning Companion, Cognitive Load, Semaphore Flag-Signaling System, Learning Performance

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Introduction

For the past few years, with the incessantly technological progress and development of robots, robotic applications were also widely popular like the industries for aerospace, manufacture and home care. Recently, robots were increasingly applicable to educational researches. Numerous research results indicated in the learning process, robots could be served as the aids for learners. It could effectively promoted the attention of learners and enhance learning motives (Draper & Clayton, 1992; Hsu, Chou, Chen, Wang, & Chan, 2007). It was featured with human-like characteristics available to draw the attention of learners effectively (Chen, Liao, Chien, & Chan, 2011). In view of interactive interfaces, it was further integrated with tangible interactive interface with visual stimulation excellently favorable for learners (Xu, Read, Sim, & McManus, 2009).

Therefore, the objects designed with human-like characteristics and their own tangibility were suitably served as the aids for learners. In terms of past researches with the comparison focusing on the variance of the teaching activities separately conducted by human teachers, robots and videos to learn the knowledge of birds, research results indicated the attentive extents of learners were ranked as the highest for those learners receiving the instruction from human teachers and then orderly followed by robots and videos (Draper & Clayton, 1992). Through robotic aids, learners showed stronger attention and motives to receive robotic aids in learning mathematics than those conducted by virtual learning companions (Hsu et al., 2007). In view of the English lessons of Korean elementary schools, robots could effectively draw the attention of students (Lee, Lee, Kye, & Ko, 2008). To sum up the aforesaid contents, this study would make robots served as learning companions and featured with humane characteristics. Also, added with robotic tangibility, an interactive learning way could be designed available to enhance the attention of learners. Also, through highly concentrated attention, excellently learning effect was achievable.

The Design of Learning Systems and Teaching Material

This study focused on the learning of semaphore. Semaphore was a communicative way by using flag signs. Flag holders with flags grasped in both hands communicated different messages by using different directions and locations of flags. The message contents were ordinarily numerics or alphabets. The combination of messages could be vested with more complex meaning inside. The settings of semaphore were often applicable to remote environment unavailable for communication by using sounds like the frequently-seen occasions of mountaineering, sailing and scout activities. This study stochastically selected 5 different numerics and 5 different alphabets serve as learning contents. They were separately 4, 1, 7, 3, 6, R, J, Y, T and L. The teaching materials were composed of the flag motions corresponding to different numerics and alphabets, acting points and actual practicing activities. In this study, there were 2 different learning systems, namely the interactive learning of videos and the interactive learning of robotic aids.

In the System of the Interactive Learning of Videos, teaching videos and learning contents were shown in the computer screen. After learners finished seeing the instructive videos of semaphore, they started the practicing stage. In the practicing stage, computer screens acted like a mirror showing the motions of a learner himself

or herself. They could practice with both hands touching the red dots in computer screens. The system was installed with a Microsoft Kinect sensor to determine whether learners could pose correct motions in their practicing activities. If learners posed wrong motions, the system would feedback and guide learners with correct motions. The operational environment of the interactive learning system of videos was illustrated as Figure 1.

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Figure 1:

The Interactive Learn System of Robotic Aids was equipped with BIOLOID robots served as learning companions. Robots prompted learners about semaphore motions by using actual motions and audio cues. Also, the robotic head was further installed with a smartphone to show learning contents as Figure 2 illustrated. After learners finished seeing robotic instruction, they started the practicing stage and this learning stage requested learners to pose correct semaphore motions. The system was installed with a Microsoft Kinect sensor to detect the motions and sounds of learners. Both robotic arms waved with both arms of learners available for learners to determine whether their motions were correct or not. After learners posed correct motions, they should shout “OK” for confirmation. If learners posed wrong motions, robots would show correct motions to guide learners for correctness.



Figure 2:

Before the learners of both systems started learning, it was required to get familiar with the operational ways of systems previously. The learning process was divided into 2 different stages, orderly the learning stage and the practicing stage. During the learning stage, learners start learning the motions and meanings of semaphore. During the practicing stage, learners practiced the motions of semaphore that they had learned earlier. After learners posed correct motions, learners started entering the next learning stage of another numeric or alphabet. Whenever any wrong motion found, the system would feedback a correct answer. It was required for the learner to repeated a correct motion and then it was just allowable to enter the learning stage of nothing numeric or alphabet.

Research Method

This study aimed to explore the possible influence on the learning effect and cognitive load about learning semaphore by using different interactive learning ways. The interactive learning ways were classified with 2 different ways, namely video learning and robotic learning. Video learning was available for learners to watch actual humane motions in tutorial videos. Robotic learning was available for learners to watch the tutorial contents provided by robots. Learning ways meant the independent variables, while learning effect and cognitive load meant dependent variables. Because when compared with the 2D motions shown in videos, robotic learning could provide more intuitive motional contents, learners with interactive robotic aids could comprehend the contents more easily. Compared with the learners of interactive learning videos, more effort was saved with lower cognitive reachable.

In this study, there were 40 undergraduates or graduate school students without learning semaphore in the past recruited for this experiments wherein males occupied 95% and females occupied 5% separately. The subjects of both genders were stochastically allocated into different learning groups. After learners finished the experiment, each one was rewarded a supermarket coupon valued at 100 NTDs. Those with excellent learning achievement could be rewarded another bonus coupon valued at 100 NTDs.

The measurement ways of learning effect was evaluated by referring to the pass criteria of the signal training of scout specialties. It aimed to tests whether learners could remember 10 different semaphore motions and their corresponding meanings during the learning process with correct motions posed. The test was designed with continually unlimited numbers of questions in the duration of a minute. Whenever computer screens showed a numeric or alphabet previously learned during the learning process, learners had to answer the corresponding motion of the shown numeric or alphabet. It aimed to sum up the total number of the correct answers given by learners to serve as the measurement for learning effect. During the learning process, the answering performance of a learner was served as the basis for scoring reference.

The cognitive load scale was further modified by referring to the proposals of Paas (1992) Amadiou (2011). They were divided into 2 dimensions, namely mental effect and perceived difficulty. Mental effect was meant to measure the effort spent by learners during the learning process equivalent to the holistic cognitive load. Perceived difficulty was meant to measure the perception about learning difficulty when learners conducted learning activities equivalent to external cognitive load. The measurement was designed by using a 9-point Likert Scale with the range from 1 (extremely less and easy) to 9(extremely much and difficulty).

Before experimental commencement, there was a 5-minute experimental debrief to inform students about experimental contents and procedures. It was allowable for learners to get familiar with the operational ways of systems. Thereafter, learners were stochastically assigned to 2 different learning groups, namely the group of interactive learning videos or the group of interactive robotic aids. The learning duration for 2 different groups was appropriately 10 minutes. After learning was

finished, a 2-minute debrief, a 1-minute measurement of learning effect and a 3-minute questionnaire answering duration of cognitive load were started immediately.

Result and Discussion

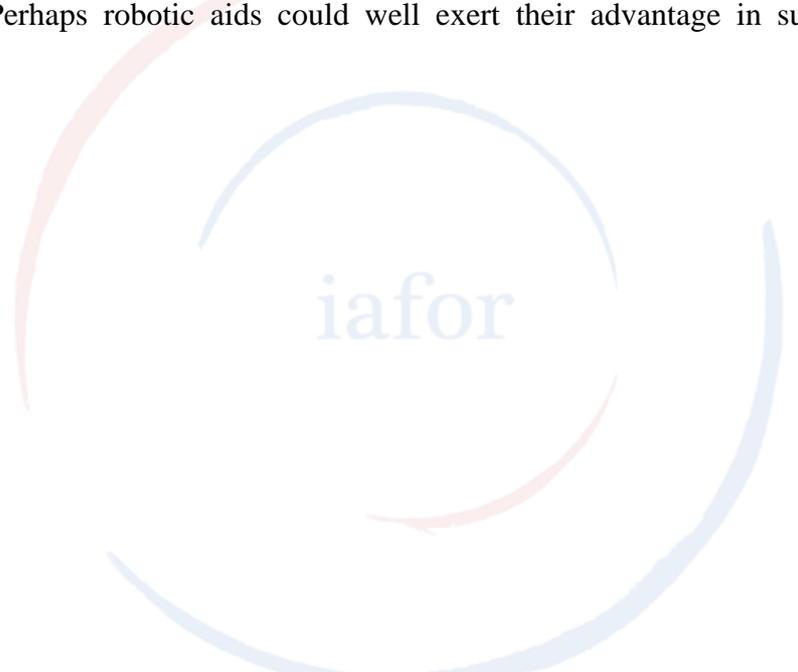
The comparison of learning effect for 2 different groups was analyzed by means of independent sample T-tests. As Levene's test of homogeneity, there was no significant variance found ($F = 0.144$, $p = 0.706$) conforming to the basic hypothesis of T-tests. Results indicated there was no significant variance of learning effect between 2 different groups ($t = 1.263$, $p = 0.214$). This result was incongruent with as expected earlier. Therefore, by repeatedly observing the video records of learners, it was found a learner of robotic aids showed the situations of unclear identification when using audio confirmation; the successful identification of the system was required for 2 shouts of audio confirmation. Therefore, it was conjecture whether there was any defective design happening to the operational ways or procedures of robotic aids to cause unexpected results could be exactly the problematic key issue. The interactive learning systems with robotic aids show the learned numerics or alphabets on the screens of Smartphone.

Because of the smaller sizes of Smartphone screens, learners had to take a close look to identify real situations and cognitive load was naturally higher to impede learning effect. Thereafter, other learners of the group of robotic aids were inquired about any similar problems happening. Actually, there was only a learner complaining about smaller sizes of computer screens with strenuous effort spent for identification. However, no other learner reported a complaint like this. Thereafter, some learners showing confused identification during the learning process were inquired about whether such a situation would impede learning effect. All the respondents reported no significant problems and influence found. Therefore, we further analyze and compare these 2 different groups to testify whether there was any defective design happening to procedures or operational ways.

Cognitive load was conducted with independent sample T-tests to compare the cognitive load of 2 different groups. Levene's homogeneity tests of variance indicated there was no significant variance found between mental effect ($F = 0.029$, $p = 0.865$) and perceived difficulty ($F = 1.449$, $p = 0.236$) conforming to the basic hypothesis of T-tests. In view of both groups, there was no significant variance in the averages of mental effect ($t = 0.946$, $p = 0.350$) and perceived difficulty ($t = 0.371$, $p = 0.713$) incongruent with earlier expectation. It meant when compared with the learners of the group of interactive video learning, comprehension was never easier for the learners of the group of robotic aids but it was assured with lower cognitive load. However, it was probably because the learning way of interactive video learning had been developed for a long time. Learners had got well accustomed to the interactive learning ways of video watching but they were not well familiar with the learning way of robotic aids to cause no significant variance in cognitive load between 2 different groups. Such a result also indicated there was no factor of defective design happening to the procedures and operational ways in the interactive learning group of robotic aids to impede learning effect.

Conclusion

The results in this study revealed when robotic aids were applied to the learning to memorize semaphore motions, no significant improvement in learning effect and cognitive load superior to those learners of the group of video watching. Also, such a result indicated robotic aids to learn semaphore motions could be served as another new learning way. In view of the past researches focusing on the learning activities of robotic aids, most experimental subjects were recruited from the students of elementary schools. It was probably because robotic aids showed no stronger attraction to the learning activities of adults. On the other hand, the learning contents for this study was the learning activities of semaphore motions. However, these were the motions under a stationary state. Through a displaying way with ordinary static images, it was available to clearly demonstrate the contents of semaphore motions. Therefore, probably robotic aids could not bring with a better demonstrating way of semaphore motions. In the future, it would be available make some trials with some robotic aids added into the researches on the learning effect of continually dynamic motions. Perhaps robotic aids could well exert their advantage in such learning subjects.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is surrounded by two large, overlapping circular arcs. The outer arc is light blue and the inner arc is light red, both appearing as thin, glowing lines.

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*Developing Thai Student's Analytical Thinking and English Presentation Skills
through Mind-Mapping Technique*

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Abstract

Today teachers are mostly in charge of preparing students for life in the 21st Century. According to the well-known Framework for 21st century learning, the analytical thinking skill is determined as one of the needed abilities for learning at the university level. This experimental research was conducted with the following purposes: 1) to compare analytical thinking skills of students after providing the activities with Mind-mapping technique; 2) to evaluate the student's presentation skills and obstacles occurred during their presentation; 3) to explore the student's opinions toward the use of Mind-mapping Technique. Twenty two university students in English education were selected by purposive sampling from Reading and writing English courses. The analytical thinking test, the presentation assessment form and student's learning logs were used as the main research instruments.

The findings revealed that the use of mind-mapping technique can develop students' analytical thinking and presentation skills after the implementation of the learning activities, the students also gained positive attitudes toward the mind-mapping activities. The study suggests that analytical thinking practice is beneficial for the success of learning. Besides, it recommended that to increase more sharing and collaboration in learning, teachers should provide analytical activities requiring students' reflection on their learning processes.

Keywords: The 21st century learning, Analytical thinking skill, English skills, Mind-mapping technique

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Introduction

Education is extremely important for survival and immunity in the current trend of rapid and continuous global changes. It is also considered an important tool to enhance student competitiveness at the international level. According to the statement of the Bureau of International Cooperation, Ministry of Education (2012), education is a tool to construct values, concepts, and understanding between nations, as well as the fundamental strengthening of developing countries. This means that the quality of people depends on the quality of education they receive. Consequently, teachers play an important role in the process of developing both the people in the country and the country itself. Improving the quality and standard of university 'English Education' students is a critical foundation and an indicator of the quality of the university's instructional management. To increase the quality standards of students, it is vital to be ready to organize effective learning activities for children and others. That is, education students need to acquire the skills to build up creative learning behaviors according to the needs of today's world as well as to achieve the established goals of the curriculum.

Education change in the 21st century, with a focus on the development of all elements of learning has become one of the most important components in manpower development. This includes practicing skills for a better quality of life and readiness for social changes. As Trilling & Fadel (2013) suggest, an approach to teaching and learning in the 21st century needs to develop the skills necessary for new generation learners. The following presents the concepts of 21st century skills required for the university students in Thailand,

Required Skills for the 21st Century Students

The learning skills needed in the 21st Century, known as the framework for 21st century learning which is delivered by the Partnership for 21st Century Skills, has identified the skills needed. These are critical thinking, problem solving, network collaboration, adaptation, initiation, oral and written communication, as well as an assessment of data with the students' complete curiosity and imagination. Undeniably, the framework indicating learning skills need in the 21st century, in particular analytical thinking, has been perceived as an essential notion for the global education. According to Cottrel (2011), analytical thinking skills have been perceived as a particularly important tool for students at the university level because they enable students to break down and synthesize data, and assess reality most effectively. Marzano (2001) and Hounsell (2010) pointed out that analytical thinking skill for students is the process of developing the capability to provide information accurately and effectively to survive in today's society, 'the Information Age', in which students must be closely connected to 'the world of knowledge' (Atagi, 2002).

However, the sole development of analytical thinking skill is not enough for 21st century students. Future teachers should also develop their presentation skills, communication skills as well as transferring skills to be ready for managing the qualified learning activities. Most importantly, education students should be trained to listen and open their minds to criticism. The findings of several studies (e.g. Marzano, 2001; Khammanee, 2009) indicate that analytical thinking can help collect enough and reasonable knowledge for presentation skills, this also helps develop the key

components in the learning process that benefit all students. According to the board of education in Thailand, the efficiency of communication skills is essential to Thai people. One of the reasons is because more than 80 % of knowledge and information is recorded in English. The people who are able to communicate effectively: listening, speaking, writing, and reading, will have an advantage because they can rapidly receive necessary and beneficial information in a short time, and respond their intentions more clearly and quickly (Klaaisee, 2012). Indeed, having good language skills, especially English is an extremely crucial. The role of English has become important for Thai people in all aspects; including business, education, and social life.

Key Learning Skills for Thai Students

From the research of the Education Development Organization presented updated information regarding efficiency analysis on the effectiveness of English use around the world, it ranked effective use and development of English use over the previous 6 years. Based on the findings of the research in Asian region, it found that the overall effectiveness of English development in Indonesia and Vietnam ranked at a higher level. In contrast, the English development and the effectiveness of English use by the people in Thailand were ranked 55 out of 60 countries in the low level group. As a result of this, the problematic use of English by Thai people can be determined as the crucial problem which seriously affects the country's growth.

A good command of English would also build stronger relationships between Thai people and expatriates, as well as helping them communicate at an international level. Moreover, in 2015, the status of Thailand will move to be, officially, a part of the Association of South East Asian Nations (ASEAN). As known, the ASEAN Charter (ASEAN Charter, 2008), Thai people, as an ASEAN citizen, will have to use English for official communication. It implies that everyone has to be able communicate in English within the continuity of the changing atmosphere of education. Besides, several educational studies and reports explicitly point out that instructional management and English skill development for Thai people need to be reformed; English efficiency of Thai people needs to be developed to increase the country's capacity for international competitiveness.

In terms of university students development, Hounsell (2010; Marzano, 2001) agree that it is exactly the teacher's responsibility to encourage learning skills development for increasing the qualified students in the 21st century. Therefore, it has also been a high commitment for teachers to organize creative activities which help develop students' learning management and also train them to learn effectively. As Formanack (2008) indicates, people in today's society need to be encouraged to learn continuously, increase their competitive capacity and adapt themselves effectively in a dynamic world. Therefore, university students aiming to be an English teacher should be provided opportunity to gain analytical thinking and creative skills that help them communicate effectively with knowledge, ability, and readiness, before they graduate and compete in the labor market. Developing students to have effective language skills in various situations, being enthusiastic using English for communication, transferring or presenting information, and having analytical thinking skills creatively are, therefore, determined as the key learning skills development of the university students in Thailand.

Mind-Mapping Technique

As stated, the education students, as the future teachers, should be developed all key learning components in the learning process designed by the teachers. From the relevant concepts and theories explained, the mind-mapping technique was chosen as an integrative strategy for this implementation. Buzan (2002) who originated the use of mind-mapping, introduced the conception of 'mind map' key words in a colourful, radiant, tree-like structure. Buzan's mind mapping has been popularly used in note making. In addition, Farrand, Hussand and Hennessey (2002) pointed out that the unique combination of imagery, colour, and visual arrangement of mind-mapping enhance student's stimulation. Moreover, Mento et al (1999) explained that mind-mapping is useful for presentations because it can help students to handle challenging questions with confidence and the presenters can have better recall of information stored in an integrated design.

In terms of learning development, Toi (2009) illustrates in his research that mind-mapping can help learners recall words more effectively with improvement in memory up to 32 %. Based on the study of Al-Jarf (2009), it reveals that mind-mapping offers powerful methods for improving the student's ability to generate, visualize, and organize ideas. Most importantly, mind-mapping encourages thinking skills. Similarly, the positive findings are found in several studies (e.g. Chai-sida, 2010; Goodnough and Woods, 2002; Phol-anun, 2013); that is, several students in their study attributed the enjoyable aspect when they created mind-mapping.

From these relevant concepts and theories as explained, the technique, mind-mapping, is believed that it was advantageous for categorizing ideas clearly and it was easy to grasp information to present or transfer to others. In other words, mind-mapping is the effective technique that helps students analyze and synthesize knowledge, and to increase understanding for both themselves and others. For this reason, mind-mapping was chosen as the integrative strategy that could help increase students' learning skills: managing, collecting, and linking information associated with main ideas, then expanding or sharing by brainstorming as through this creative diagram.

The Objectives of the Study

Regarding the importance of developing analytical thinking and English presentation skills of Thai students through the use of mind-mapping technique, the specific objectives of this study were set out as follows:

1. To compare students' analytical thinking skills before and after providing instructional activities through the use of mind-mapping.
2. To evaluate the students' presentation skill in English and the obstacles occurred during activities through the use of mind-mapping.
3. To explore the students' attitudes on activities toward the use of mind-mapping.

Research Methodology

The subjects of this study were 22 students enrolling in Reading and Writing English II course and these students were selected by the random sampling technique. The analytical thinking test, presentation skills assessment, learning log, and five lesson plans with mind-mapping technique were employed as the research tools of this study.

The analytical thinking skill test consisting of multiple choice questions with 4 options and one correct answer aimed to measure five aspects of analytical thinking, namely identifying problematic issues, classifying logically, comparing data systematically, referencing reasonably and connecting the relationship of data. Each aspect comprised 6 items. To do the test, the students were asked to analyze 6 situations of 30 items within 45 minutes. The presentation skills assessment was used in a form of a checklist to measure the students' performance level (Haber and Lingard, 2004). The assessors chose the behaviors as shown in the assessment list: 1 meaning the behaviors were shown and 0 meaning behaviors were not shown. The learning log, similar to student's diary, comprised student's reflections on instructional activities through the use of mind-mapping. Also, five lesson plans of learning activities through the use of mind-mapping were designed. Each lesson plan consisted of 3 stages: the first started with questioning for each group brainstorming, then, the teacher encouraged students to search for various answers to each question. The second stage, students wrote their answers as freely as they could. This was also called data collection. That is, group members had to collect the group answers and help each other analyze them: identify and clarify the similarities and differences in order to classify and make the conclusion of group answers. The last stage was called drawing mind-maps. The group members worked together on creating mind-maps to present group thinking results. At this stage, group members were encouraged to use their imagination in mind-mapping to present relevant information clearly and interestingly through lines, colors, font and pictures.

Results and Discussion

1. Analytical Thinking Skills

For the comparison of the students' analytical thinking skills before and after learning management through the use of mind-mapping, the results clearly indicated that the mean score of the analytical thinking skills of Thai students in general was higher. In addition, the percentage of the progress score of student's analytical thinking skills after the instructional activities through the use of mind-mapping was higher than before the provision of the activities. Regarding various elements of the analytical thinking skills, the highest percentage of the progress score was the aspect of the data comparison for systematical classification whereas the lowest percentage was the aspect of classifying data logically.

As analytical thinking skills have been considered as the ability to analyze things or subjects and search for elements and the relationship of elements for understanding these subject and skills development, Marzano (2001); Chaisrida (2010); and Phol-Anan, (2013) similarly viewed that mind-mapping is a useful tool not only for analyze and classify similarities and differences systematically but also to connect with other related knowledge. Thus, findings of the present study which revealed that mind-mapping could enhance the effective application of knowledge to new situations and create predictions by using the data displayed, it was similar to what Chai-sida (2010) and Phol-anun (2013) indicated in their studies. It is important to note that the results of the study definitely confirms that mind-mapping is an effective instructional activity for developing skills related to analytical thinking skills; however, the overall mean score shown in this result was not significant. The following rationale can be given for students in the Reading and Writing English II course who had to analyze

data from a passage prepared by the teacher. That is, the students needed to use basic English reading skills and transfer them to writing process skills which depended on the individual's fundamental English knowledge: whether weak or strong. As a result of this, it is the teacher's responsibility to arrange the learning activities which help on-going development of the students' analytical thinking skills as well as to spend some time for developing student's thinking skills.

2. The Presentation Skill

This part, the results illustrated the average progress score of the students' English presentation skills after the implementation of instructional activities through the use of mind-mapping. It was found that the overall progress score was higher than before providing instructional activities. Regarding the results from the assessment list, the highest percentages of the progress scores were: presenting with accurate, complete, and comprehensible content; communicating with clear and accurate information; and grasping accurate concepts through the use of mind-mapping. The results were respectively. On the other hand, it was found that the percentage of the progress score of using pictures, fonts, colors, and lines in mind-mapping was 0, meaning there was no significant improvement in this aspect.

This can be explained that learning skills in this study were integrated through the procedures of activities as designed: stating the topic; brainstorming for fathering data; as well as drawing a summary of concepts through the use of mind-mapping. Each learning element certainly influenced student's learning development. Thus, the results of progress scores as shown were high. Additionally, assigning the students to work on the task in groups of 5-7 also led to productive outcomes because students had an opportunity to help each other than working alone. Students had their own space to think and share ideas freely without teacher's control and felt free to pass their ideas through mind-mapping activities. This was the strength of using mind-mapping at the brainstorming stage in this study.

As a result, the better presentation skills appeared at each stage, the progress score of each assessing aspect was rather high. In addition, it can be seen that the atmosphere surrounded with friendship could increase tight participation for sharing. When the ideas were concluded through mind-mapping, it could help students argue in a positive manner, help them accept the other's imagination and be able to relate ideas in various ways. This learning activity affected positively to the presentation skill development. This study result was consistent with the study of Klaisee (2012) which speaking training set technique was implemented to develop presentation skills. Also, this study was not different from the study of Kim et al (2005) which developed the medical students' presentation skills in The United States of America by using OCP card set technique to improve student's presentation of medical information. His overall result indicated that the use of mind-mapping techniques obviously helped medical students' understand the content of presentation; the brainstorming variety also helped manage ideas and present thoroughly.

Besides, the analysis of assessment lists found a significant mean in almost every aspect including knowledge and understanding of presentation data, presentation skills, and the use of mind-mapping. Regarding each aspect of the assessment list, the highest progress scores were for; presenting content correctly and completely

covering the main points. The subordinate assessment list showed knowledge and understanding of data and presentation skills. It can be explained that when students had an opportunity to exchange knowledge in sub-groups and summarize through the use of mind-mapping techniques, this helped them learn integratively and thoughtfully before presenting effectively. However, the results of assessment lists of using pictures, font, colors and lines clearly did not increase after the learning activities. It was because the students were able to do well both before and after the implementation of mind-mapping technique. So, there were no changes for this.

3. Student's Attitudes toward the Implementation of Mind-Mapping

According to the learning log, another source of the students' opinions on the use of mind-mapping technique, the results were categorized into 6 aspects, namely learning process, thinking skills development, knowledge development, emotion or feeling, action or behavior, and application development. Learning process was the students' feeling reflected the learning through the use of mind-mapping in various aspects including team working, learning thinking, and building up member relationship. The results indicated that the instructional activities gave the members opportunities to work as a team: they could brainstorm, learn with each other enjoyably and happily and also create unity in groups. The students also identified that they could learn to listen and accepted the ways the other thought and the group relationship could be built up. Thinking skills development was the student's reflections toward the use of mind-mapping in terms of the development of thinking skills. In general, most students felt that the participation in mind-mapping activities could help them think more systematically. Moreover, students stated that the activity helped them practice arranging ideas for solving problems, link related concepts from a broad perspective, and learn how to analyze effectively. Knowledge development was the student's views on their development of knowledge through the use of this technique. They stated that using mind-mapping could develop their knowledge and learnt by themselves. This certainly increased more independent learning.

The emotional development was the students' feeling about their learning in terms of the development of feelings. The results indicated that students felt appreciated during drawing mind-mapping, they enjoyed creating the map as it helped them remember things easily. Behavior development was the students' feeling reflected in terms of the development of behaviors. The students felt that mind-mapping technique helped them practice seeking for the answers themselves: they practiced to learn more independently. Besides, they stated that this technique helped them learn to apply things to daily life: making decisions; solving urgent problems; and working more purposefully. The last aspect, application development was the students' opinion on their learning of application. The students felt that they could apply knowledge to practice and their thinking skills increased. Moreover, they assured that they could apply and motivate their students' thinking skills by this way in the future. Besides, they felt confident to apply this technique to their real life, as well as to be ready for giving others some suggestion.

In sum, the implementation arranging the activities that the students participated in as shown in this study, the teacher played important roles for successful results planning lessons, preparing learning management, defining the objectives of the analytical thinking skills, explaining the activities and preparing questions so that the students

could brainstorm through the use of mind-mapping technique. This was consistent with what Johnson et al. (1991) and Kagan (1995) said that the teacher has an important role to encourage students to participate in activities and group members' have the roles of taking responsibility together.

Conclusion

The paper has shed some light on the importance of analytical thinking skills required for the university students in Thailand. It demonstrated the use of instructional activities with mind-mapping designed by the teachers. The results revealed that the development of the student's analytical thinking skill after the implementation of mind-mapping activities was higher than before the implementation. Regarding the presentation skill, most of students were able to generalize the topic of presentation clearly with high scores, and the students also had good attitudes toward their learning activities through the use of mind-mapping. All of the results lead to the important conclusion that analytical thinking skill is one of the essential key learning skills for the Thai university students and it is possible for the teacher to increase student's thinking skills with a productive technique, mind-mapping is one example.

Some suggestions for the teacher who uses mind-mapping technique, it is recommended that the student's reflection, i.e. on motivation, or skills improvement, should be added in the instructional activities process. For the future researches in this area, the study suggests that the activities promoting analytical thinking skills should be provided to other educational students or other major students. Moreover, the comparison between study programs can be conducted to check the differences of development progress, to find good points, weak points and develop students following the objective directly. Besides, the investigation of other required skills in the 21st century such as searching skills in the world of technology and communication for understanding other different cultures should be developed in the future.

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The Study of Writing Cases to Promote Student Teachers Professional Growth

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Abstract

Reflective teaching is a process where teachers think over their teaching practices, analyzing how something was taught and how the practice might be improved or changed for better learning outcomes. Some points of consideration in the reflection process might be what is currently being done, why it's being done and how well students are learning. Reflection is claimed as a goal in many teacher preparation programs, but how it might be fostered in student teachers are problematic issues.

The researcher develops a six components case writing format to foster student teachers' reflections. The case writing format is as follows: (a) my teaching event (5W1H), (b) my true teaching situation, and (c) my ideal teaching situation, (d) my reflections after writing case, (e) the feedback of peers and professor to my case. (f) If I had the chance to teach it again how I will do? The purpose of this study is to explore how case writing promotes student teachers' professional growth. The data consisted of case narratives developed by six student teachers during their teaching internships. Findings indicated that First, student teachers know their own blind spots and gain a deeper self-understanding. Second, they can calmly face their true teaching situations. Third, they can gradually improve their teaching practice. Fourth, they grow both in their thinking and teaching capability.

Keywords: case writing, reflection, student teacher, professional growth

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Introduction

As a Christian & professor of teacher education, I believe it is very important to enable all pre-service teachers to reach their fullest potential both as individuals and as members of educators since education is a life-long learning process and life is a learning process.

Teachers usually feel that they are growing professionally when they are acquiring experience. Experience is very important for professional growth; however, it cannot alone develop teachers' professionalism. In fact, it takes the quality of experience away where working and teaching is not growing experience, but repeating the same thing or mistakes again and again. Experience should help us to grow, but it should not fossilize us in a particular pattern of behavior. If we want to grow professionally and help our learners to learn, we need to introspect ourselves, critically examine the course we teach and our teaching and retrospect our teaching activities. Experience can either be a growing experience or a mere repetition of years without adding to it or changing it. Teachers who view experience as a growing experience reflect on their own teaching in some way, which ranges from anecdotal variety to classroom data analysis. Furthermore, they question their teaching, try out new ideas and strategies and look for alternatives to do it differently next time by using intuition and experience (Chalikandy, M. A., 2014).

According to Murphy (2001) reflection is done “(1) to find out understanding of the teaching-learning process; (2) to expand one's repertoire of strategic options as a language teacher; and (3) to enhance the quality of learning opportunities one is able to provide in language classrooms” (p. 499-500). It is to deepen teachers' understanding of teaching and learning behaviors and to improve teaching abilities and learning. For Gebhard and Oprandy (1999) teachers' reflection is to understand their own teaching practices and to know different teaching situations.

Valli (1997) defined reflective teaching as teaching with careful thought and judgment. In 1933, Dewey defined reflective thought as the “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (p. 9). Valli (1997) explains Dewey's conception of reflective thought: “Reflective thought looks back on assumptions and beliefs to be sure they are grounded in logic, evidence, or both, and it looks forward to the implications or consequences of a particular course of action” (Shulman, 2002)

Reflective thought is necessary in teaching because it moves teachers from routine activities to deliberate activities and intelligent action (Dewey, 1964; Fullan, 1982, 2001). Dewey (1964) argued that teacher preparation programs historically had not provided training on reflective thinking nor modeled reflection in various forms. Dewey felt that the ‘hows’ were presented but not the ‘whys’; for example, a teacher could model an effective learning strategy yet could not explain how this had informed her practice.

Anna Richert (1987) found that the two most important determinants of the richness of reflection among teachers were the richness of artifacts and the availability of a partner in the process of recall and reflection. Valli indicated that there are five types

of reflection. They are: technical reflection, reflection-in and on-action, deliberative reflection, personalistic reflection, and critical reflection (cited from Shulman, 2002).

(*1)

Table 1 Types of Reflection

Type	Content for Reflection	Quality of Reflection
Technical Reflection Reflection for practice	General instruction and management behaviors based on research on teaching	Matching one's own performance to external guidelines
Reflection-in/-on action Reflection-in-practice Reflection-on-practice	One's own personal teaching performance	Basing decisions on one's unique situation
Deliberative reflection Reflection-for-practice Reflection-in-practice Reflection-on-practice	A whole range of teaching concerns, including students, the curriculum, instructional strategies, the rules and organization of the classroom	Weighing competing viewpoints and research findings
Personalistic reflection Reflection-for-practice Reflection-in-practice Reflection-on-practice	One's own personal growth and relationships with students	Listening to and trusting one's own inner voice and the voices of others
Critical reflection Reflection-for-practice Reflection-on-practice	The social, moral, and political dimensions of schooling	Judging the goals and purposes of schooling in light of ethical criteria such as social justice and equality of opportunity

The literature has distinguished three dimensions: reflection-on-practice, reflection-in-practice, and reflection-for-practice (Killion & Todnem, 1991; Shulman & Colbert, 1989; Conway, 2001; Hatton & Smith, 1994). Reflection for practice occurs prior to the lessons as the teacher is thinking and planning. Reflection-in-practice occurs when the teacher or practitioner actually responds to those unplanned, spontaneous situations in the classroom that Schön discussed. Reflection-on-practice occurs after when looking back on decisions made in the classroom (Shulman, 2002).

Shulman (2002) found that case writing can help teachers develop a critical understanding of the nuanced relationship between student learning, teacher teaching, school-based integrated curriculum, principal's leadership, community resources, and collaborated teaching. It can also help teachers engage in the type of reflection that enables them to question fundamental assumptions, reconsider their beliefs towards teaching, and learn from their practice.

Cases are richly detailed narratives of teaching that are used to (a) guide personal reflection on their teaching and (b) inform others about issues case writers are encountering in teaching and how these issues might be approached.

Although they are ‘story-like’, cases are not simply stories that teachers tell about their work. They are crafted into compelling narratives, with a beginning, middle and end, and situated in an event or series of events that unfold over time. They have a plot that is problem-focused with some dramatic tension that must be relieved. They are embedded with many problems that can be framed and analyzed from various perspectives, and they include the thoughts and feelings of the teacher-writers as they describe the accounts (Toomey, R., 2005).

Some case writers describe problems that remain unresolved and end their stories with a series of questions about what to do. Others include solutions that may or may not have worked. They all include reflective comments about their accounts that examine what they have learned from the experience and/or what they may do differently in another similar situation (Toomey, R., 2005).

Shulman J. H. (2002) found that all the teachers benefit from collaborative case writing experiences. The case writing process had a profound impact on teachers’ professional lives. These include:

- (a) examining the alignment between student assignments and assessments;
- (b) revising classroom assessments;
- (c) influencing change in district assessments;
- (d) revising vague and incomplete rubrics;
- (e) involving students in both their own assessment and the development of new assessments;
- (f) dividing instructional methods into smaller parts so students can more readily understand concepts and tasks;
- (g) encouraging students to assess one another (e.g., using running records during paired oral reading); and
- (h) inaugurating out-of-school remedial classes for students reading below grade level.

Shulman J. H. (2002) indicated that reasons why this process prompted such a profound learning experience are as follows. 1. time for focused reflection, 2. questioning assumptions, 3. increased understanding and empowerment, 4. value of situated learning, 5. link between theory and practice, 6. collaboration in a community of learners.

Collaborative case writing experiences promote in-service teachers’ professional developments. However, there is no study focus on how case writing promotes student teachers’ professional growth. Therefore, the purpose of this study is to explore how case writing promotes student teachers’ professional growth.

Methodology

A. Participants

Six student teachers during their teaching internships directed by the researcher participated in this study. They are five female, one male; two female are graduate students, the others own bachelor degrees. All have case reading and writing experiences.

B. The Format of Case Writing

The case writing format is as follows:

- (a) My teaching event (including who, where, when, what and how)
- (b) My true teaching situation (including dialogues, detailed descriptions of what happened in a certain teaching situation)
- (c) My ideal teaching situation (including a general description of one's ideal teaching situation)
- (d) My reflections after writing case (describing one's reflections after writing case)
- (e) My reflections after reading feedbacks from peers and professor to my case.
- (f) How will I do if I had the chance to teach it again (My new understanding and action plan to my case)

According to the above case writing format, all participants were required to write one case per month. Each participant wrote four cases during their internships.

C. Data Collection and Analysis

There are 24 cases collected and analyzed by content analysis. The steps of content analysis used by the researcher are:

- 1) Copy and read through the transcript - make brief notes in the margin when interesting or relevant information is found.
- 2) Go through the notes made in the margins and list the different types of information found.
- 3) Read through the list and categorize each item in a way that offers a description of what it is about.
- 4) Identify whether or not the categories can be linked any way and list them as major categories (or themes) and / or minor categories (or themes).
- 5) Compare and contrast the various major and minor categories.
- 6) When the researcher has done the above with all of the transcripts, collect all of the categories or themes and examine each in detail and consider if it fits and its relevance.

Results

1. Student-teachers know their own blind spots and gain a deeper self-understanding

Wen and Ru described her self-awareness of teacher's roles, behaviors and blind spots as follows:

Writing case was not easy, I usually spend a lot of time to select the theme and concept of the subject, hoped to describe the teaching events and actual situation of teaching in detail to be able to discuss with teachers and partners, and then build up my own belief and practical knowledge. In the process of writing case, I ceaselessly inspected my own thinking, roles, teaching behavior and relationship building, etc., with both rational and emotional. In fact, this process was such painful, just like a sharp knife further cut the old wound (Wen).

I saw my own teaching shortcoming and the other five partners also gave me a lot of suggestions although I did not think there were so many questions on my teaching. I thought this was the reason why my case needed to be discussed. We all had our own blind spots, but through others' viewpoints, we could more clearly see our own blind spots and tried to improve them (Ru).

2. Student-teachers can calmly face their true teaching situations

Rou indicated:

I didn't like to write case since I needed to reflect on my teaching action which I had made mistakes. I didn't want to go back and thought about my teaching mistakes because I needed to work hard overcoming my sadness then had the courage to face it. The beginning of the recall was painful so I wanted to package it in words and weaken my mistakes though I was absolutely clear what the fact was. After writing cases for two to three times, I was gradually able to honestly face my own teaching. When I could face my teaching shortcoming, I could further try to correct these shortcomings. After reflecting on my teaching action many times, I might not be able to correct them immediately, but I was brave enough to try, break through, and with a positive attitude to accept this shortcoming. I no longer escape.

3. Student-teachers can gradually improve their teaching practice

Rou described how he improved his teaching practice through case discussion as follows:

Each discussion, not just two hours of brainstorming, I still thought of the advices given by partners even returned to the school and made adjust my teaching method. The flow of Chinese lesson was disrupted due to my consideration with assignment. However, after reading partner's Chinese lesson plan, I learned the first lesson should help students to know the main idea of the lesson instead of deeply investigated the content and answer questions.

4. Student-teachers grow both in their thinking and teaching ability

Jun vividly describes her growth both in thinking and teaching capability as follows:

After case discussion, I got not only my teaching questions answered, but also better ways of thinking. Case discussion broadened my vision and thinking dimension of teaching. In the past I only knew there was wrong with my teaching procedure, but had no idea of how to improve it. So I just skipped the problems, and jumped to another method. But after my teaching case was discussed, there were always great solutions to my problems. In addition, I also learned a different way of thinking.

I realized that this case can be solved as this problem or the other problem. For example, at first, I thought the problem is in my teaching process. However, the key issue turned into my assignment of homework. Besides, the homework includes exercises, practice books and learning sheets. That's really a sharp warning to me when I did not know what to do with assignment and my peers asked what is the

purpose of assignment? Is it for preview or for review? I never thought there was a goal in the assignment and it should coordinate with the design of teaching activities. In this way, the assignment broaden and reinforce learning. I never thought in that way.



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Delegation and Intervention of Education Policy in the UK

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Abstract

This paper investigates delegation and intervention of education policies in the relations between central and local government of the UK. Since Thatcher Administration, delegation to the local authority, local education authority and school are seen in many cases of the education policies, meanwhile central intervention is also remarkable as seen in removal of power from local education authority. Through this paper I pay attention to the education policies of the UK from viewpoints of the delegation, control accompanied with delegation, control without delegation and intervention including removal of power. This paper consists of three parts. First, I define some concept used throughout this paper. Secondly, I delineate delegation and intervention of education policy from Conservative Administration in 1979 to current Cameron Administration via Blair Labour Administration beginning in 1997. Drawn is a sketch of education policies, although based on continuous but sometimes contradictory local government policies provided by the central government. I also scrutinize almost every education policy from the above viewpoints. Finally, I consider relationship between the accountability and delegation or control in the education policies. After extracting difference about delegation and control between Conservative and Labour education policies, I especially discuss accountability about the delegation to the corporation in Blair Administration.

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Delegation, Control and Intervention

In the end of nineteenth century, the delegation was underestimated as renunciation by Parliament which is responsible for legislation (Hewart). At that time, Albert Venn Dicey described three characteristics of the sovereignty by Parliament as follows: first, Parliament can legally do anything, secondly, there is no competing legislative power residing anywhere else, and, thirdly, there is nobody or person capable of pronouncing an Act of Parliament to be void (Dicey). However, because of new trend of power shift to the executive bodies and growth of the government activity, which caused time constraint of legislation by the Parliament, the delegation became recognized to be unavoidable. The complexity of the administrative decision-making requires that the primary legislation is obliged to be supported by the delegated power. Consequently, Parliament confers the delegated power to the other administrative bodies, and conferred bodies have power of discretion under some conditions (Leyland, pp.89). Additionally, Deregulation and Contracting Out Act 1994 (DCOA) gives the power of amending law, originally legislated by Parliament, to Secretary of State, in order to reduce certain statutory burdens.

Each Administration has its own political strategy, which is decided depending on the economic situation, domestic political situation and ideology of the Ministerial party. How to delegate, control or intervene for execution of the education policy is derived from the political strategy. Since Thatcher Administration, the education policy between central government and the local authority became political dispute. This new situation can be due to two reasons: first, the education became recognized as decisive factor, which may cause success or decline of the nation. The education was never nothing but one of the social service. Second, the central government did not afford to regard the local authority as independent of the central government, as in the Education Act 1944. Furthermore, the Labour controlled local authority caused the Conservative Administration to intervene the locality. Under such a situation, delegation to the school from the local education authority is frequently seen, and simultaneously central intervention into the local authority became remarkable.

This paper considers education policy in the intergovernmental relations from viewpoints of delegation and intervention. I especially scrutinize history of the education policy from Thatcher Administration to Cameron Administration, and classify them into four categories; delegation, control accompanied with delegation, control without delegation, and intervention or removal of power. The delegation means transfer of power from the government to the local authority, or that from the local authority to the school. The control accompanied with delegation means that the control measure which is relevant to the delegated measure is enforced to the local authority or school. The intervention or removal of power means abolition of power which has been possessed by the local authority.

History of Delegation and Intervention in the UK

The delegation in the education policy of the United Kingdom started in the Education Act 1944, where every county and borough should include the local education authority in the area. The property and staff are transferred to the local education authority. The Battler Act (1944) legalized the delegation of the compulsory education from the government to the local education authority. These

two Acts established not only delegation to the local authority but also control over the local education authority by the central government. The common factor of these Acts is consensus between the central government and local authority.

The Quota System (1956) established rule about recruitment and distribution of the teachers by the government. This System is control of the government without delegation. In the Remuneration of Teachers Act 1965, the local education authority is required to pay salary to the teachers complied by the salary table assigned by the government. Furthermore, change of the salary table was required approval of the Education Department of the government. This Act is addressed as the control without delegation.

In 1971, DES recognized that the rationalization of the education policy, in other words, effective utilization of the resource is essential in the management of education. The consultative paper on the 16-18 group pointed limited resources and prioritization of the objectives for efficient use of resources (DES, 1971) (Ranson, pp.188). This concept not only leads to control without delegation but also includes removal of power from the local authority in the future.

The Education Act 1973 ended a power possessed by the DES and replaced part of the power. In the Education (Labour Experience) Act 1973 delegated was the power to the local authority, which can plan and execute the labour experience by the pupils under the age of commencement, as a part of the education. This is the delegation to the school. The Employment of Children Act 1973 established new rule about employment of children and supervision by the local authority. This is delegation to the local authority and control over the local education authority at the same time. Starting from the situation in which the government began to feel necessary in efficiency of the local administrative service, the Local Government Act 1974 established control over the local authority. This meant reduction of official staffs in the local authority, which is control without delegation.

The Education Act 1976 states, as principle of the comprehensive schools, that local education authorities shall, in the exercise and performance of their powers and duties relating to secondary education, have regard to the general principle that such education is to be provided only in schools where the arrangements for the admission of pupil are not based (wholly or partly) on selection by reference to ability or aptitude (1(1)).

Furthermore, Callaghan's Ruskin College speech in 1976 is a turning point for the education policy in the UK. Callaghan considered that concern of the British society is not reflected to education, and called for debate to include these concerns into education. During the second half of the 70s, consensus between the central government and local authority which has been traditional since the Education Act 1944, ended. Taylor Report (1977) proposed big change that permitted parents to participate in the school board. This measure is a remarkable delegation in the history of the UK education policies. The education policy newly issued by the Labour administration leads to the education reform by Thatcher administration. Although even some British papers emphasize that intervention to the local education authority began after the Conservative administration, in fact, seed of the intervention was already planted in Callaghan speech and Taylor Report under the Labour

administration. Since essence of Taylor Report is an unprecedented delegation about participation of parents in the school board, it is logical consequence and problem of time that this delegation soon leads the removal of power from the local education authority.

Although the Education Act 1979 is short, it is an Act which symbolizes the education policy in Thatcher Administration. This Act abolished comprehensive principle in which ability and attitude are not taken into account for the school admission, which was stated in the Education Act 1976 (1). Macfarlane Report (1980) proposed rationalization and effectiveness by the cost reduction in the field of education (Ranson, pp.188). This report is addressed as control without delegation. The Local Government, Planning and Land Act 1980 states the relaxation of control over the local authority. On the other hand, restriction to the local expenditure is stated by introduction of the block grant (56), which is the control over the local authority. There coexist relaxation of power and control by block grant in the Local Government, Planning and Land Act 1980.

The Education Act 1980 states the participation of the parents to the school governing board (2(5)), the selection of school by the parents (6), and the right of appeal when school admission is not permitted (7). They are delegation to the parents. The School Curriculum 1981 is the measure of governmental control for the local education authority and schools in England and Wales. As the surplus of the local expenditure still continued, the government established the rate-capping in the Rate Act 1984. In 1983, the government decided to abolish Great London Council (GLC) and metropolitan county councils (MCCs). The Local Government Act 1985 also abolished Inner London Education Authority (ILEA). They are removal of power.

The Education (No. 2) Act 1986 states on the basis that every maintained school must have the school governing board, assignment of the parental board by the school board (5), conjunction of the school board with the business, and management of school group in the area by the single school board (9). This Act set out making and documentation of the school curriculum policy in the area, as duty of the local education authority (17). This Act also states that, though the local education authority decides school staff including teacher, the assignment of the head teacher must be consulted with the school board (35, 37). Furthermore, this Act states delegation of the school budget to the school (36). These provisions are delegation to the school which is called local management of schools (LMS).

The Education Reform Act 1988 is huge law which is said to be summary of the education policy in the Thatcher Administration. This Act states implementation of the curriculum, including religious education and national curriculum, to be duty of the Secretary of State, local education authority and school governing body (1). Relevantly, this Act established National Curriculum Council (NCC) and School Examination Assessment Council (SEAC) (14(1)). This national curriculum is control accompanied with delegation of participation of the parents to the school boards as the council. This Act also established responsibility of the local authority to make pupils admitted to the school maintained by the local authority, under the number of pupils specified by the standard (28(1)). This is delegation to the local authority. This Act also set out duty of the local authority which can permit discretion by the school governing board when delegation about school finance is required (36). This is

delegation to the school. This Act also established City Technology College and City College for the Technology of the Art (105). In accordance with the rule of this Act, the person who is willing to manage this independent school will enter agreement with Secretary of State. This is removal of power from local education authority. This Act also changes provision and finance of the higher education and the further education (Part II), and established body corporate, Polytechnics and Colleges Funding Council (PCFC) (132). The members of the body corporate are assigned by the government. The body corporate has power of payment for the expenditure of the incurred local authority and school (133). The establishment of the Polytechnics and Colleges Funding Council in place of the local authority is the removal of power. Furthermore, based on the abolition of the Inner London Education Authority (ILEA) by the Local Government Act 1985, this Act abolished ILEA and established new local education authority in Inner London (162, 163). This Act also set out the financial formula for the school budget (Part III 38). This is control accompanied with delegation to the school governing body.

The white paper entitled Choice and Diversity (1992), in Major Conservative Administration, focused on the maintained school and set out establishment of Funding Agency for School (FAS), as new body by the statutory. The FAS inherited payment of the cap-grant from the Department of Education. The FAS also shared duty with the local education authority for the primary school and the secondary school in the area. In accordance with the Choice and Diversity, the government obtained new power to replace original governor when the school governing body fails in the school management. This is control by removal of the power from the local education authority.

The Further and Higher Education Act 1992 established new body corporate, the Further Education Funding Councils (1). This Act set out the rule of the transfer about the land, property, right and responsibility from the local education authority to the Further Education Funding Councils (23). This Act, in which the government gives the power to the body corporate, is removal of power from the local education authority. The Education Act 1993 is a legalization to apply new framework (FAS) to the school organization in England and Wales. This framework was designed to give power and responsibility to individual school. This Act states that, in respect of the area of any local education authority, the Secretary of State may make an order where he wishes responsibility for providing sufficient school places to be held by the funding agency as well as the local education authority, or make an order where he wishes that responsibility to be held by the funding authority alone (12(1)). This is power transfer to FAS with power removal from the local education authority.

The School Inspection Act 1996 states that the Chief Inspectorate for England must have the duty about the quality of the education, the educational standard, efficient management of the financial resources and the spiritual, moral, social and cultural development of pupils (2(1)). The Chief Inspector must also report on the schools (2(2)). This is control without delegation.

The Education Act 1996 states that the local education authority may establish primary schools and secondary schools, maintain them, and assist any primary or secondary school which is not maintained by them (16). This Act, based on section 16, states the assisted places at independent schools to enable pupils who might otherwise

not be able to do so to benefit from education at the schools (479). However, the Education (School) Act 1997 abolished the assisted place scheme, which was established under the Conservative Administration in 1980. The Education Act 1997 also basically abolished the assisted place scheme, which remained in the primary school, by abolishing the assisted place from the secondary school (1). This Act also delegated power to set the discipline and behavior to the school governing board (2). This Act also delegated new power of the teacher in which he or she can restrict and restrain pupils, and detain pupils after school without agreement of their parents (2, 4, 5). They are delegation. This Act also requires the planning for treatment of the pupil with behavioral difficulty to the local education authority (9). This is control over the local education authority. This Act also states transfer of staff in National Council for Vocational Qualifications (NCVQ) and School Curriculum and Assessment Authority (SCAA) to Qualifications and Curriculum Authority (QCA) (35). This Act also states that the course of study leading to an external qualification is to be proved with the use of any specified public funding, unless the qualification is for the time being appeared by the Secretary of State or designated body in accordance with the regulation (37(1)). Additionally, due to this Act, the government obtained power of order to inspect the local authority (38). This is control over the local authority. New Labour Administration deeply committed to the education policies rather than former Conservative Administrations. In Blair Administration, due to tight connection between the body corporate and business, severe problems became clear, which were drawing considerable subsidies, increase of non-permanent staffs and industry action by staff. (Kendall, pp. 164-165).

The Education Action Zones (EAZ), one characteristic of Blair's education policies, was presented in the White Paper entitled Excellence in the School (1997) and in the School Standard and Framework Act 1998, The EAZ is assumed to be established in the deprived area and managed by the local education authority and the other organization, which is composed of the parents and business. They have discretion in curriculum and contract of teachers. The role of the local education authority was still positive in spite of the participation of the business. The establishment of the EAZ school is delegation to the local education authority and parents. Twelve EAZ schools started till September, 1998, thirteen EAZ schools were added in 1999, and furthermore, seventy three EAZ schools were established till March, 2000 (Kendall, pp. 162).

The School Standard and Framework Act 1998 was equipped with remarkable characteristic of the school inspection. This Act gave the power of school inspection to the local education authority and the Secretary of State. First, the local education authority is conferred power of intervention to maintained school under the condition of school subject to formal warning or school with serious weakness or school requiring special measures (14(1)). Second, the measures of the intervention are additional appointment of school governors and suspension of the delegated budget (14(2)). As seen in the School Standard and Framework Act 1998, as the characteristic of the Blair Labour Administration, listed up is the school inspection to which even Thatcher Conservative Administration did not dare to touch. This Act is authentic intervention. Moser Report (1999) summarized that something like one adult in five in this country is not functionally literate and far more people have problems with numeracy. This report added that this is a reflection on past decade of schooling and one of the reasons for low productivity in the economy.

The Local Government Act 2000 states that every local authority are to have power to promote economic, social and environmental well-being of their area (2). This is partial delegation to the local authority. The Guardian reported, on education topics at the start of Blair's second term, the comprehensives failed to develop individual abilities (The Guardian, 8 Dec. 2009). In 2001, Prime Minister Blair made a speech that there is nothing more important to making Britain a fairer and stronger country, and prioritized education the highest. Blair also stressed specialist school which should be raised to at least 1,500 in five years (The Guardian, 23 May 2001). In 2000, the government disclosed some problematic local education authorities, in Bradford, Rochdale and Waltham Forest. The Education Secretary, Morris, sent outside consultant in Bradford's local education authority. This measure was followed to the inspection reporting danger of failing.

The authorities in Rochdale and Waltham Forest were ordered to work with outside experts (BBC News, 24 May 2000). These measures are intervention into the local education authority. In 2002, Morris manifested end of "one-size-fits-all" comprehensive, by saying "the school have failed to break the link between poverty and academic under achievement" (The Telegraph, 23 June 2002). The Education Act 2005 states duty to inspect certain schools at prescribed intervals (5(1)). This section is applied to community, foundation and voluntary schools, community and foundation special schools, city technology colleges and city colleges for the technology of the arts (5(2)). Although burden of the school inspection is reduced, this is still control without delegation. The Education and Inspection Act 2006 gave power of discontinuance of schools to the local education authority (15). This Act also gave discretion for discontinuance of the community special; school and foundation special school to the local education authority (17). This is control accompanied with delegation. In 2012, the DES of Cameron Administration presented National Funding Formula for the school finance. This measure was reflection of the statement about financial reduction in the G20 Toronto Summit, 2010.

In 2014, the DES presented policy to reduce bureaucracy in management of the school governing bodies. The National Funding Formula is control accompanied with delegation, while the reduction of the bureaucracy is delegation to the school. This relation is similar to the previous relation in which the national curriculum is control, while participation of the parents to the school governing board is delegation, which was established in the Education Act 1980.

The comparison of education policies between Thatcher Conservative Administration and Blair Labour Administration results in the following that the former, in principle of market, removed power from the local education authority with delegating power to the school, while the latter proceeded realization of the market principle by discontinuance of the problematic school through inspection, and by establishment of the body corporate, with revival of partial delegation to the local authority. Therefore, the education policy under Thatcher Administration is different from that under Blair Administration, in a sense of intervention that the former removed power from local authority or abolished local education authority as the institutional reform, while the latter did so in a style of one by one smash, that is, privatization.

Table 1 Classification of Legislation in Education Policies

Legalization et. al.	Delegation	Control accompanied with delegation	Control without delegation	Intervention With Removal of power
1944 Education Act	yes	yes	no	no
1944 Butler Act	yes	yes	no	no
1956 Quota System	no	no	yes	no
1965 Remuneration of Teachers Act	no	no	yes	no
1971 DES consultative paper 16- 18 group	no	no	yes	yes
1973 Education Act	yes	no	no	no
1973 Education (Work Experience) Act	yes	no	no	no
1973 Employment of Children Act	yes	yes	no	no
1974 Local Government Act	no	no	yes	no
1977 Taylor Report	yes	no	no	no
1980 Macfarlane Report	no	no	yes	no
1980 Local Government, Planning and Land Act	yes	yes	no	no
1980 Education Act	yes	no	no	no
1981 School Curriculum	no	yes	no	no
1983 Abolishment of GLC and MCCs	no	no	no	yes
1985 Local Government Act Abolition of ILEA	no	no	no	yes
1986 Education (No.2) Act	yes	no	no	no
1988 Education Reform Act National Curriculum	no	no	yes	no
1988 Education Reform Act Admission	yes	no	no	no
1988 Education Reform Act Discretion of school governing board by permission of local authority	yes	no	no	no
1988 Education Reform Act Body corporate of higher and further education	no	no	no	yes
1988 Education Reform Act Financial formula	no	yes	no	no
1992 Choice and Diversity	no	no	no	yes
1992 Further and Higher Education Act	no	no	no	yes
1993 Education Act	no	no	no	yes
1996 School Inspection Act	no	no	yes	no

1997 Education Act responsibilities in discipline and behavior of governor	yes	no	no	no
1997 Education Act power of teachers	yes	no	no	no
1997 Education Act inspections of local authorities	no	no	yes	no
1998 School Standards and Framework Act	no	no	no	yes
2000 Local Government Act	yes	no	no	no
2000 statement by minister Outside consultant was sent to LEA	no	no	no	yes
2005 Education Act Reduction of school inspection	no	no	yes	no
2006 Education and Inspection Act	No	no	yes	no
2012 DES National Funding Formula	No	no	yes	no
2012 DES Reduction of bureaucracy	Yes	no	no	no

This table was made by the author based on the analysis of this paper.

Accountability and Delegation

The accountability is one of the most important elements in the administration. The Accountability, in general requires ethic and transparency of the administration. This accountability has been legalized as responsibility of the government and local authority in many acts. The Local Government Act 1972 states, as duty of the local authority, proper administration of their financial affair (151). The Local Government Finance Act 1982 states the establishment of the Audit Commission (11-15). The Local Government Act 2000 established a new ethical framework including the statutory code of conducts (Part III), (Leyland, pp.109-110).

It is obvious that the local authority or school delegated power by the government must owe duty and responsibility of the accountability to guarantee their transparency. On the other hand, it is also obvious that the legalized accountability must be complied by the local authority or school which is imposed control by the government. Though the accountability is expected to be complied in the public institution, problem about the accountability may occur when the body corporate outside public institution is delegated from the government. The affair of financial probity due to employers which the body corporate of the further education school subcontracted (Kendall, pp. 164) shows room for strict accountability.

The problem of accountability in the body corporate exists not only in the financial matter but also in the academic matter. It is nothing to say that the body corporate of the City Technology College is required to discharge accountability from viewpoint of management in market principle. However, there still exists doubtful problem that

whether the accountability from academic viewpoint which teaching staffs have been pursuing persistently. Concerned is failure of attainment of the discipline by eager fostering of specialists with contempt of academic accountability.



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The Education Act 1944

The Battler Act (1944)

Quata System (1956)

The Remuneration of Teachers Act 1965

The Education Act 1973

The Education (Labour Experience) Act 1973

The Employment of Children Act 1973

The Local Government Act 1974

The Education Act 1976

Callaghan's Ruskin College speech in 1976

Taylor Report (1977)

The Education Act 1979

Macfarlane Report (1980)

The Local Government, Planning and Land Act 1980

The Education Act 1980

The School Curriculum 1981

The Education (No. 2) Act 1986

The Education Reform Act 1988

Choice and Diversity (1992)

The Further and Higher Education Act 1992

The Deregulation and Contracting Out Act 1994 (DCOA)

The School Inspection Act 1996

The Education Act 1996

The Education (School) Act 1997

The Education Act 1997

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Self-Efficacy of Preservice Teachers toward Differentiation

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Abstract

A significant correlation between self-efficacy and knowledge was identified in previous studies (Kao & Tsai, 2009; Scherer & Bruce, 2001). Self-efficacy toward differentiation refers to the degree of confidence future teachers have that they can perform successfully in the task of differentiation. Indeed, self-efficacy appears to influence the teachers' choice of activities and how much effort they will spend on them (Bandura, 1986). To determine whether the gifted course in the current study could improve the participants' self-efficacy, that is, their belief that they have the capacity needed for differentiation, the special education future teachers' self-efficacy was examined both quantitatively and qualitatively. The quantitative analysis assessed all participants (n=90); they were presented with four self-efficacy questions, before and after participating in the course. Three questions were adapted from STEBI-B scale (Enochs & Riggs, 1990). The fourth question was developed by the researcher. The answers were based on a 4-point Likert scale: Poor, Average, Good, and Very Good. A one-way repeated measures ANOVA was performed to determine if the participants' self-efficacy improved after the course. No significant effect on the participants' self-efficacy toward differentiation was identified ($p < .05$). The results from the study, suggested limited improvement in the participants' self-efficacy toward differentiation. As a consequence, there is merit in redevelopment of the gifted education course, and the incorporation of more practical opportunities for future teachers to experience the teaching of the gifted.

Keywords: Self-efficacy, Future teachers, University, Gifted education, Differentiation

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Introduction

Self-efficacy refers to the degree of confidence future teachers have that they can perform successfully in the task of differentiation for gifted students. These students should be equally entitled to an education tailored to match their exceptional abilities. Landrum et al (1998) stated that; "Gifted learners are entitled to be served by professional who have specialised preparation in gifted education, expertise in appropriate differentiated content and instructional methods" (p.67). Equity issues also suggest that, as a result of such differences in the students' potential, teachers have a responsibility to address the needs of all children in ways that enable them to maximize their cognitive aptitudes, including the gifted students. However, research shows that the needs of gifted students in Saudi Arabia and elsewhere are not being met as well as they could be by contemporary schooling (Al Qarni, 2010; Finley, 2008; Taylor & Milton, 2006; Winebrenner, 2000). One explanation, according to Paine (1990), is that teachers' lack of knowledge about, and experience with, giftedness, frequently find it difficult to address their students' diverse needs. This explanation remains unchallenged in the literature. Of particular concern is the self-efficacy of future teachers who will one day influence the education of gifted students (Abbitt, 2011; Curtis, 2005).

According to Bandura, self-efficacy appears to influence the teachers' choice of activities and how much effort they will spend on them (1986). Previous research indicated that teacher self-efficacy is a better predictor toward gifted students when trying to predict teachers' willingness to differentiate instruction for gifted students being taught in the regular classroom (Chan, 2001; Romi & Leyser, 2006; Starko & Schack, 1989)

Knowledge was shown also to have an impact on self-efficacy (Abbitt, 2011; Ertmer & Ottenbreit-Leftwich, 2010; Pajares, 1992; Tschannen-Moran, Hoy, & Hoy, 1998; Wheatley, 2005). Pajares (1992) discusses the relationship and distinctions between knowledge and self-efficacy and the influence these might have on the teaching practices of future educators. So, understanding the relationship between knowledge and self-efficacy toward differentiation provides insight into how effective a university course about giftedness on self-efficacy.

Appropriate teacher education is seen as important in preparing teachers for differentiation. This study was conducted in Saudi Arabia, where significant educational reform is being undertaken to align the social and economic future with changing global circumstances. Like many countries, Saudi Arabia is attempting to develop a knowledge economy and, conditional for the success of this agenda is the support of the gifted. Teachers play an important role in supporting the gifted (Diezmann & Watters, 2000). The term "giftedness" has been defined in Saudi Arabia as being "evident in someone who has exceptional academic abilities and who needs special and different education from that which is available in the regular classroom" (ALNafi & et al., 1992, p. 25).

This study examines future teachers' perceived ability to implement differentiation to meet the academic needs of the gifted within heterogeneous classrooms. To design a university gifted course that has the greatest impact on classroom practices, there is a

need to know the relationship between (self-efficacy and knowledge) to the expected behavioral changes of the participants once they go to the classroom. In addition, examining the relationship between knowledge of differentiation and self-efficacy beliefs can provide a unique connection between these two areas of research. As such, it was the focus of this study to explore the relationship between knowledge and self-efficacy of future teachers regarding their ability to successfully implement differentiation for the gifted. A clearer understanding of how knowledge would affect self-efficacy is needed in order to effectively and positively influence the ways in which the gifted course is taught at the university level. To this end, the following question guided this research study:

To what extent does participating in a gifted education course would impact on future teachers' self-efficacy toward differentiation?

Literature review

There is general belief among theorists and researchers in gifted education on the need to differentiate the regular curriculum for gifted students (Finley, 2008; Gagné, 2005; Tomlinson, Tomchin, & Callahan, 1994). In this context, differentiation refers to the strategy of providing learning experiences that are sufficiently challenging and relevant to the needs of all children within a heterogeneous ability classroom. However, according to Diezmann and Watters (2000), beside the importance of the challenging tasks for gifted students, the role of the teacher is critical in providing and facilitating these tasks.

When considering how to design teacher preparation experiences that will develop skilled and knowledgeable teachers who create engaging and effective classroom environments, researchers have found both knowledge and self-efficacy to be useful in understanding the processes at work (Ertmer & Ottenbreit-Leftwich, 2010; Roberts & Henson, 2001). It has been also found that the self-efficacy of both inservice and future teachers explain and predict classroom practices (Ertmer & Ottenbreit-Leftwich, 2010). Teacher preparation efforts that focus solely on developing knowledge, however, also face the challenge of addressing the complete picture of how future teachers become practicing teachers who implement differentiation in creative and effective practice. Ertmer and Ottenbreit-Leftwich (2010) described the connection between knowledge and self-efficacy beliefs by stating that “although knowledge is necessary, it is not enough if teachers do not also feel confident using that knowledge to facilitate student learning” (p. 261)

In the late 1970's, efficacy thought developed from Bandura's theory of self-efficacy (Bandura, 1977). Bandura (1997) defined personal self-efficacy as “judgments about how well one can organize and execute courses of action required to deal with perspective situations that contain many ambiguous, unpredictable, and often stressful elements” (pg. 201). Furthermore, Bandura (1995) postulated that ‘self-efficacy beliefs influence the course of action people choose to pursue, how much effort they put forth in given endeavours, how long they would persevere in the face of obstacles and failures, their resilience to adversity, whether their thought patterns are self-hindering or self-aiding, how much stress and depression they experience in coping with taxing environmental demands, and the level of accomplishments they realize” (p. 3). According to Bandura definition, lack of future teachers' self-efficacy of

differentiating means that the needs of future gifted children would be overlooked in most of regular classrooms

Since 1990, researchers have seen similar evidence connecting teacher efficacy beliefs to teaching behaviours. For example, Czerniak and Shriver (1994) found significant differences between future elementary teachers with high and low self-efficacy in their choices of instructional strategies. Specifically, high-efficacy teachers tended to choose activities in which they expected students to use higher-level thinking and problem-solving skills, and were more likely than low-efficacy teachers to use teaching strategies that were based on research or theory. In addition, Czerniak and Shriver found that the teachers with high teaching self-efficacy were oriented toward the goals of developing students' critical thinking and decision-making skills, and tended to measure success of their lessons by whether or not they believed these goals were achieved. In contrast, the teachers with low teaching self-efficacy tended to measure success of a lesson by their ability to control students and to keep the class orderly and quiet. Future teachers with high teaching self-efficacy have also been shown to be more likely to claim that activity-based instruction, in which students learn through cooperation and experience, is the most appropriate method of teaching at the elementary level (Enochs, Scharmann, & Riggs, 1995). According to studies cited by Roberts and Henson (2001), both pre-service and experienced teachers with high efficacy tended to experiment with teaching materials and teaching methods more than teachers who were less efficacious. Henson also asserted that self-efficacy beliefs are primary to behavioral changes.

A significant correlation between self-efficacy and knowledge was also identified in previous studies (Abbitt, 2011; Tschannen-Moran et al., 1998; Wheatley, 2005). For instance, Abbitt (2011) investigated the relationship between measures of Technological Pedagogical Content Knowledge (TPACK) and the self-efficacy beliefs of future teachers about technology integration. Within a single-group, pretest–posttest design, a correlational analysis identified knowledge domains in the TPACK model have a significant and positive correlation with self-efficacy beliefs about technology integration. Findings from the study illustrate the changing nature of the complex relationship between knowledge and self-efficacy beliefs and highlight the potential areas of knowledge that influence future teachers' beliefs about technology integration.

This study sought to examine to what extent does participating in a university gifted course would improve future teachers' self-efficacy toward differentiation.

Methodology

To determine whether the gifted course in the current study could improve the participants' self-efficacy, that is, their belief that they have the capacity needed for differentiation, the special education future teachers' self-efficacy was examined both quantitatively and qualitatively. According to Johnson, Onwuegbuzie, and Turner (2004) the term mixed methods designs has gained dominance over other terms such as integrative design and mixed design.

Mixed methods design was used in this study to collect quantitative and qualitative data. The design initially allowed the documentation of self-efficacy and relationships

to knowledge. The quantitative component investigated a cohort of future special education teachers taking a semester course in gifted education. It also investigated the pre- and post-change in self-efficacy of the participants towards differentiation. This design involves a sequential presentation of; a pre-test questionnaire, semi-structured interviews, followed by an intervention (the gifted education course), a post-test questionnaire and, finally semi-structured interviews. The following diagram represents the study structure.

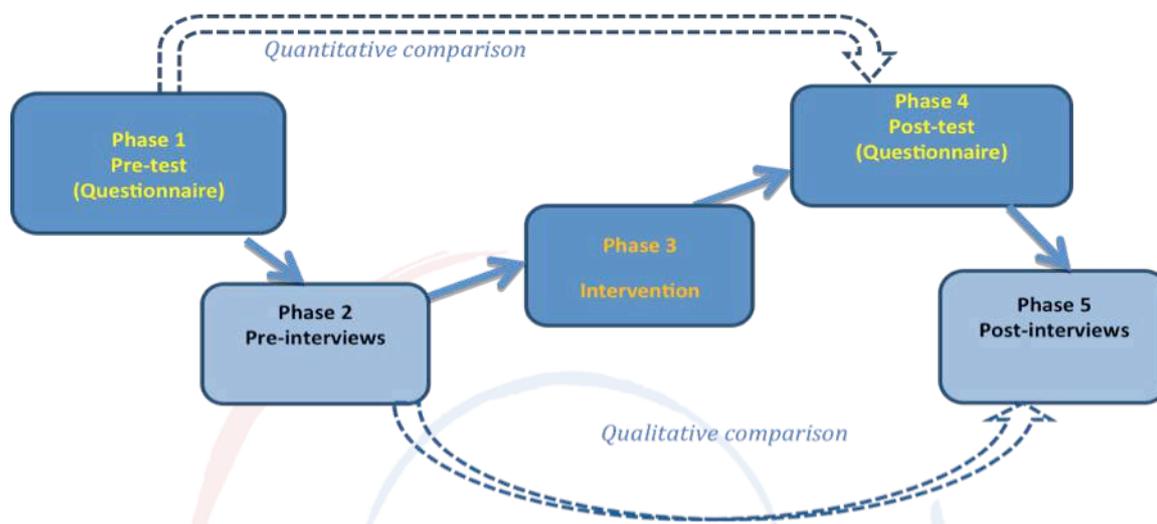


Figure 1: five phases of the study

The qualitative component involved eight participants enrolled in the gifted education course as a component of the special education program. Thus, the quantitative dimension of the study was complemented with qualitative data collected through semi-structured interviews. These interviews probed participants' self-efficacy, in depth, and enabled the researcher to identify reasons for the participant's possible change of self-efficacy toward differentiation.

Quantitative Data: Phases 1 and 4 “Questionnaire”

This section describes the participants, the questionnaire, data collection and data analysis of quantitative phases 1 and 4.

Participants

The participants were university students at a tertiary institution's Department of Special Education, Faculty of Education. The University is accredited by the Saudi Arabian Ministry of Higher Education, and funded by the government of Saudi Arabia.

The students were undertaking a four year full-time Bachelor of Special Education degree. The graduates can be employed as Primary, Secondary, or High School teachers. These future special education teachers were undertaking an introductory course about gifted education as part of their degree program. In Saudi Arabia, gifted education in teacher education programs falls within the gambit of special education.

Consequently, this study focused on future teachers who are undertaking Special Education program

The participants included all Saudi Arabian special education future teachers, enrolled in the gifted course at this university (N= 90) during year 2014. The participants (all male) ranged in age from 19-40 years. The majority (91%) was between 20-24 years old, the more normal future teachers' age in Saudi Arabia. At the time the study was conducted, they had not commenced their internship or professional experience. The internship is required in the last six months of the teachers' programs.

Those participants 25 years and older (9%) tended to be from a group of in-service teachers who held a diploma in education, but were upgrading their qualification to the bachelor's degree in Special Education

Questionnaire

The quantitative analysis assessed all participants (n=90); they were presented with four self-efficacy questions, before and after participating in the course. Three questions were adapted from STEBI-B scale. The fourth question was developed by the researcher. To ensure the reliability of the questions, back translation technique was used for these questions. The answers were based on a 4-point Likert scale: Poor, Average, Good, and Very Good. The questions are given below:

“Right now in my present pre-teaching situation, the strength of my personal beliefs in my capabilities to:

1. “Plan activities that accommodate the range of individual differences among my students”.
2. “Implement teaching methods at an appropriate pace to accommodate differences among my students”.
3. “Utilise teaching aids and learning materials that accommodate individual differences among my students”.
4. “Improve the academic performance of students, including those who are gifted”.
- 5.

Data Collection

The participants' self-efficacy were examined before and after their enrolment in the gifted course, as means of determining whether the participants' self-efficacy were changed by the course.

The questionnaire was conducted at the Special Education Department, within the selected University, Saudi Arabia. A permission letter requesting the distribution of the questionnaires to the participants was sent to the chairperson of the University; approval was given. The course, offered in the Spring semester, 2014, was a one semester (16 weeks), with three-hour long lectures a week. The future special education teachers were tested twice; prior to and after the experience of attending the course. According to Gravetter and Wallnau (2008):

In a repeated-measures study, we are interested in whether or not there is a systemic difference between the scores in the first treatment condition and the scores in the second treatment condition. The hypothesis test will use the difference scores obtained from a sample to evaluate the overall mean difference, μ_D , for the entire population. (p. 346)

The future special education teachers were invited, in the week before starting the course (pre-test) and in last week of the course (post-test), to complete the questionnaire, fold it, and place it in the box located at the front of the lecture room. The participants were asked to include, in the questionnaire, an identifier code that enabled the researcher to match the pre- and post-test responses. The questionnaire took approximately 30 minutes to complete. Confidentiality was assured as the participants placed their own questionnaire in the sealed box.

Qualitative Data: Phases 2 and 5 Semi-Structured Interviews

This section addresses phases 2 and 5 of the qualitative data, the semi-structured interviews. Creswell (2008) identifies five required steps in qualitative research: (1) identifying participants and locations; (2) gaining access to the organisation; (3) determining the types of data collection; (4) developing data collection forms; and (5) conducting the process in an ethical manner.

Through the participants own identifier codes on their questionnaire, 10 participants were selected, identified, and invited to participate in one-on-one voluntary 40 minutes interviews. The selection was based on extreme case sampling, which, according to Creswell (2008), is "a form of purposeful sampling in which you study an outlier case or one that displays extreme characteristics" (p. 215).

The participants were selected on the basis of their means' scores, that is: the five participants with lowest mean scores, and the five participants with highest mean scores on the questionnaire. Eight of the invited participants agreed to the interviews (four with lower mean scores and four with higher mean scores).

Data Collection

The interview, guided by the study's theoretical framework, had a mixture of three kinds of questions: the main questions (e.g., would you be able to plan activities that accommodate the range of individual differences among my students), the follow-up questions, and the probes. According to Rubin and Rubin (2005), the main questions are used, in advance, to cover each part of the broad topic. The follow-up questions are asked to obtain an explanation of the themes or concepts that the interviewees have made, while the probes questions "are techniques to keep a discussion going while providing clarifications" (Rubin & Rubin, 2005, p. 137).

Each 40 minute voluntary interview explored, in-depth, the participants' self-efficacy and sought to identify what experiences or circumstances might have led them to their answers. The interviews also probed into the ways the course influenced their self-efficacy. The findings uncovered important aspects of the questionnaire related to the participants' self-efficacy toward differentiation.

Data Analysis

In the current study, the qualitative data were analysed by using thematic analysis. Thematic analysis “is the most commonly used form of analysis in qualitative research, particularly research involving interviews” (Willis, 2006, p. 271).

The thematic content analysis method proceeded as follows. After each semi-structured interview, the data were immediately transcribed verbatim by the researcher. After completing the interview response transcription, the researcher read the data twice to check for transcription accuracy. The data were then coded as described next.

There are two approaches to coding data, each operating with slightly different rules: a priori and emergent. When dealing with a priori coding, the categories are established prior to the analysis, based upon theories and finding of previous systematic studies (Boyatzis, 1998; Stemler, 2001; Weber, 1990).

- **A priori themes:** the four self-efficacy beliefs (Enochs & Riggs, 1990).
- **Emergent themes:** were obtained through extensive reading, searching through materials, sorting, comparing within categories, coding, adding key words and concepts, and finally writing mini-summaries of categories.

Course Description: Phase 3

This section provides a detailed description of phase 3, the “Introduction to Giftedness and Creativity–255” special course. Designed for third-year undergraduate students in the Special Education Program at a Saudi University’s Department of Special Education, the compulsory semester-long course is taught by an Associate Professor of Psychology. This is students’ only course about giftedness. In Spring semester, 2014, 100 3rd-year special education students, who were male, and Saudi future teachers (the participants) enrolled in the course. The purpose of the course was to improve the future teachers’ knowledge of giftedness and their teaching strategies. The course introduced future special education teachers to the characteristics and needs of gifted students in Saudi Arabia. The following (Figure 2) is a brief description of the course.

The course aims to provide special education future teachers with a background overview of the importance of giftedness in Saudi culture and its inception. It also intends to illustrate the distinction between the different terms: “intelligence”, “genius”, “intellectually” “gifted”, “talent”, and “creativity”, and to identify the characteristics of gifted students. In addition, it strives to provide knowledge of identification procedures for gifted, and to identify programs of care, problems and teaching methods of gifted students.

The learning objectives of this course translated from the course outline are:

1. To have a general background on the concept of giftedness creativity and related theories.
2. To recognize the importance of the gifted and their role in the development of societies.
3. To understand the genetic and environmental factors affecting giftedness and creativity.
4. To recognize the tools and methods necessary for identifying the gifted.
5. To identify the characteristics and needs of the gifted in light of recent differing theories.
6. To recognize different programs for the gifted students, and
7. To understand problems facing gifted students

The lecturer taught these topics in one three hour session per week (Wednesdays from 8 to 11 am) for 16 weeks, an entire semester. The lecturer collated all the information presented in the lecturer slides into a book of notes which the students used for pre-lecture reading. The students also take notes during the lectures, with an allocated amount of time (approximately 15 minutes) at the end of each lecture for questions. The students were not required to do any more than interact or discuss the course during the allocated time for the course. The course design, called conclusion-oriented or lecture-based, has long been used in universities in the Middle East, as well as throughout the world (Adekoya & Olatoye, 2011; McKeachie & Svinicki, 2005).

Significant components of gifted education were recommended for inclusion into all future teacher courses, namely: characteristics and identification of gifted students (including gifted underachievers), social and emotional issues, understanding of the myths versus the facts about gifted students, the value of giftedness, and differentiation. The gifted course in the current study included these components

Result

The current study sought to examine to what extent participating in a gifted education course would impact on future teachers' self-efficacy toward differentiation.

A one-way repeated measures ANOVA was performed to determine if the participants' self-efficacy improved after the course. No significant effect on the participants' self-efficacy toward differentiation was identified ($p < .05$). The results are presented in Table 1

Table.1 below.

Table.1 ANOVA for Self-efficacy Questions

Questions		Sum of Squares	df	Mean Square	F	Sig.
1	Between Groups	.000	1	.000	.001	.982
	Within Groups	98.253	176	.558		
	Total	98.253	177			
2	Between Groups	.738	1	.738	1.008	.317
	Within Groups	128.818	176	.732		
	Total	129.556	177			
3	Between Groups	1.676	1	1.676	2.436	.120
	Within Groups	120.369	175	.688		
	Total	122.045	176			
4	Between Groups	.052	1	.052	.087	.769
	Within Groups	104.898	176	.596		
	Total	104.949	177			

** $p < 0.01$

The results from the quantitative data, suggested limited improvement in the participants' self-efficacy toward differentiation. Prior to introducing to the course, most participants had low self-efficacy toward differentiation because either the allocated time of the class or the skills needed to teach the gifted. For example, participants (PRC70) and (PRC30) stated that, "... because of the allocated time for the class, I found it difficult to differentiate the curriculum for the gifted in the regular classrooms", and "it is difficult for teachers to provide different activities for different abilities the students have in the allocated time of the class", respectively. Indeed, all participants were concerned about the limited class time allocated for general teaching, which further inhibited teachers from meeting the needs of the gifted. Because of the increasing diversity in classrooms, the teachers tended to focus their efforts and attention on the majority of students, that is, teaching the average students. As a consequence of such pressures, low self-efficacy toward differentiation may have developed.

Other participants linked the difficulty to implement differentiation to teachers' competencies "if the teacher is not scientifically qualified he will definitely face difficulties in implementing teaching methods at an appropriate pace to accommodate differences among students" (PRC8). Another participant had a preference for teaching the disabled and his reason was that "gifted students need gifted teachers who can deal with them and meet their different needs and I don't see myself gifted"

(PRC30). These previous responses imply that for teacher to differentiate the curriculum for the gifted, teachers must be specialised in gifted education or is gifted himself. This is an alarming finding as most of gifted students are taught by non-specialised gifted teachers at least in Saudi Arabia (Alqarni, 2010). These responses reflect their lack of competencies to teach the gifted. This reason was shown to be linked to the lack of knowledge about differentiation (Paine, 1990)

Upon completing the course, the participants were interviewed for a second time. The interviews showed that most participants (n=4) had limited improvement in their self-efficacy toward differentiation. For example, participant (POC12) stated: "I don't think I'm able to accommodate individual differences among my students, they need a specialised teacher who is able to meet their individual needs". His response indicated low self-efficacy, which may be attributed to the lack of real differentiation experience in the course. Another participant explained: "I wish the course had showed me in real world practically how to differentiate the curriculum for the gifted" (POC54). The data indicate that the gifted course had little, if any, positive impact on the participants' self-efficacy in differentiation, even after completing the course.

Some participants became more aware of the curiosity of the gifted along with the difficult questions they ask, which make it difficult to teach the gifted. As one of the participants explained, " I don't think I'm able to teach the gifted. They need specialized teacher to teach them" (POC54). Another participant was concern about curiosity by gifted students " I think it is difficult to deal with gifted students specially in answering some of the gifted questions" (POC8). The course was designed to introduce the participants to some of gifted characteristics such as curiosity (Course Notes: Chapters IV and V, pp. 53-78, Slides 1-71, Weeks 4 & 5).

The issue of time pressure also remained as a concern for a number of participants. As noted by participant (POC12), "I agree with special services for the gifted such as special classes, but I don't agree it should be provided in the mainstream classrooms; teachers have no time to address different teaching activities for different abilities". This perspective appeared to be a potential reason for low self-efficacy. While the participants were concerned with helping gifted students to reach their potential, the course appears to have given them no real experiences or strategies for how to differentiate the curriculum effectively for the gifted in mainstream classrooms. However, more time was given to alternative strategies, such as special classes, schools and acceleration. For example, one participant commented that, "there were some programs as far as I remember but we studied more about acceleration and special schools" (POC58).

The future special education teachers would benefit from having more hands-on experience in how to use differentiation strategies. These experiences would also help develop high self-efficacy towards differentiation. Such attention is important as differentiation involves adjusting the content, the learning processes, and the types of products created. Further, the learning environment can be changed through developing different expectations, places to do their work, and assessment practices. Without sufficient guidance and exposure, future teachers will become overwhelmed by the goals to be achieved.

Discussion

The goal of this study was to explore to what extent participating in gifted course would impacts on future teachers' self-efficacy beliefs about their ability to differentiate the curriculum for the gifted. The data analysis suggests limited improvement in future teachers' self efficacy toward differentiation as a result of one semester long gifted course.

Concern for the participants in the current study revolved around either time pressure or the curiosity of the gifted. Within the curriculum differentiation approach, teachers must adjust the curriculum, and find additional resources, to match the needs of the gifted learners. According to VanTassel-Baska and Stambaugh (2005), and congruent with the current findings, the “lack of planning time” for teachers is a major barrier or inhibition to the implementation of differentiation for gifted students. For example, the participants argued that they sometimes feel overwhelmed by the increasing diversity in classrooms, especially with the limited allocated class time. As found in earlier research (Tomlinson et al., 1995), 1996), such concern has the teachers focusing the effort and attention on teaching the average students, and, consequently, low self-efficacy may exist.

The results from the current study are consistent with the research of Westberg and Archambault (1995), Tomlinson et al. (1994), and Gallagher and Weiss (1986), that is, the greatest barriers to effective gifted programs within regular classrooms arose from a lack of planning and teaching time. The findings appear to relate to the participants' experiences of differentiation. For example, teachers with field experience of differentiation tend to feel more confident and capable of implementing the necessary programs (Hudson, Hudson, Lewis, & Watters, 2010; Rash & Miller, 2000).

Further, the participants' unchanged mindset and self-efficacy towards differentiation may result because “teacher education programs transmit essentially conservative perspectives and future teachers do not have the conceptual tools to transcend these ideas” (Pierce & Adams, 2009, p. 3). Using new ideas in a classroom usually happens more effectively if teachers have seen it modelled (Bangel, 2007). This lack of applied use of differentiation would affect concerns. Thus, future teachers' self-efficacy towards differentiation appears hard to improve by only acquiring surface level of knowledge (information). Schultz et al. also identified that, where future teachers were involved in a semester-long course, specific to gifted education, they showed no improvement in their self-efficacy toward differentiation; however, they did become “concerned about the workload necessary to deal with gifted children in their classrooms” (p. 23).

Some future teacher concerns have been identified as relating back to their schooling experiences. According to Lortie (1975), they spend thousands of hours as students. These experiences, especially in Saudi Arabia, mean that the future teachers had witnessed teachers having little time for planning within their busy teaching schedules. Al-Alwani (2005) also found that Saudi teachers work long hours, and had a heavy work load, with few hours for planning and teaching. Consequently, until future

teachers are provided with real world teaching experience, that incorporates the various recommended strategies, techniques and pedagogy, teacher education programs will continue to reaffirm previous assumptions rather than challenge them (Koehler, 1985; Lortie, 1975; Nel, 1992; Pajares, 1992).

In the current study, a number of participants became more aware of the curiosity of the gifted, as well as the difficult questions they ask. In addition, the semi-structured interviews revealed low self-efficacy because of the teacher's skills and subject matter knowledge. Further, as indicated by some participants, the teachers' knowledge of their subject matter may lead to student underachievement, including that of the gifted. Similarly, a longitudinal study of American youth, using data on 2,829 students, by Monk and King (1994), found that teachers' content preparation, as measured by coursework in the subject field, is positively related to students' achievements in mathematics and science. The beliefs of the future teachers in the current study also aligned with VanTassel-Baska and Stambaugh's (2005) argument that: "Subject matter knowledge, although important for all students, becomes critical for educators working with gifted students" (p. 212). They argued that gifted students are more advanced in subject matter content and need teachers who have advanced knowledge to challenge them beyond the typical curriculum content zones. Some participants in the present study also come to realise that it is very difficult for teachers who lack the content knowledge and scientific process to guide gifted students through some specific strategies, such as independent inquiry. Teacher's subject matter knowledge was also identified as a factor for ability to cater for the educational needs of gifted students.

Conclusion

To conclude, the gifted education course appears to be effective in increasing future teachers' knowledge of giftedness at least at a superficial level. However, the nature of the course may not sufficiently challenge previous concerns and experiences to remove those concerns or experiences, or provide the participants with the capability to differentiate the curriculum effectively for the gifted in mainstream classrooms. Thus, as shown in the current study, despite the increase of surface knowledge about giftedness by the participants, this knowledge might not necessarily translate into high self-efficacy and yet effective teaching of gifted students. Nevertheless, awareness of the differences of gifted students and the needs of the gifted is an important first step.

The future teachers' low self-efficacy toward differentiation may continue and be hard to change without deep knowledge and practice. The course information needs to be provided within applied, field experience, provided throughout their study.

The gifted course can service as a starting point to focus future teachers' attention on the varied needs of the gifted and learn about some of their special services. As they move into the classrooms, future teachers need a continuous supportive environment to help them improve their self-efficacy and achieve this task. Such support may include university supervisor visits and professional workshops. While the learning and implementation of differentiation will take time, it is essential that the groundwork be firmly embedded so that the transition is achieved as best practice.

Limitation

The results of this study are applicable to Saudi future special education teachers selected for the investigation within the current university context. Further research is needed, however, to determine whether the findings apply to other future special education teachers across other universities.

Attaining low self-efficacy towards differentiation supports the value of offering future teachers with hand-on experience that reflects and challenges their traditional beliefs. A future research question could be: What is the self-efficacy of future teachers toward differentiation before and after being involved in field experience?

The study should be replicated to include larger population from different universities. The findings from the current study have significant implications for policy and practice within Saudi Arabia. For example, the Ministry of Education, the Ministry of Higher Education and lecturers at the universities may use the study outcomes in their planning of professional development opportunities for future teachers, as well as in their evaluation of future teachers' preparation programs.

The results show that the current gifted education course has little effect on the self-efficacy of future teachers toward differentiation. Thus, substantial changes with deep knowledge are required in the type of gifted education course provided and the inclusion of field experience.

Thoughts for Improving Future Course

Future teachers could spend four weeks (of three-hour sessions) at university. From week five, they may spend two hours at school working individually with gifted students, and one hour at the university to discuss and reflect on their practice and their student's progress. In their first four weeks at university, they may be exposed to information about gifted students, schools, and policies relating to gifted education. They also may learn about key theoretical models of giftedness, such as Gagné's (1993, 2010) "Differentiated Model for Gifted and Talented (DMGT)".

They may be introduced to a wide range of related topics (namely, reasons for gifted disengagement, the importance of collaboration between teachers, parents and school personnel in supporting gifted students, incorporating challenging learning experiences that promote higher order thinking and problem solving skills; real world learning experiences for students; and the alignment and design of curriculum, pedagogy and assessment that is relevant to gifted student's development, interests and needs). Given the significance of experience in contributing to beliefs (Polanyi, 1966), it would appear that the participants need practical, authentic experiences. For instance sessions would appear to be needed to help them differentiate instruction. The study also informs teacher education in general in that the style of delivery doesn't really improve self-efficacy. The influence of cultural knowledge and experience overwhelms what happens in a university course. We could have anticipated this from other literature (e.g., science education). So a lot has to be done to engage students deeply in learning and to challenge existing beliefs.

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The Endangered Dialect of the Bugkalots

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Abstract

The purpose of this study was to explore the use of Bugkalot native language and the factors that cause its usage and non-usage as perceived by the Bugkalots in a village of Quirino Province, Philippines. The research made use of the qualitative research approach. Case study was the strategy used to gather the needed information. Research participants were composed of the High School students whose parents are both Bugkalots, or one of the parents is a Bugkalot. Focused Group Discussions were also conducted among the elders to explore the causes of non-usage of the dialect. The findings of the study reveals that the research participants like their native dialect but they prefer to speak in Ilocano since Ilocano and Tagalog are the languages used in school. From the elders' point of view, the causes of its non-usage are: declining number of speakers, education, and migration. With these findings, the researcher compiled Bugkalot words and their meanings before it will be forgotten or eventually lost by the present generation.

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Introduction

It is estimated that indigenous people number to about 350 million individuals (4% of humanity), representing over 5,000 languages and cultures in more than 70 countries all over the world (<http://portal.unesco.org/ci/en/ev.php>). Out of the Philippines' population of 94.01 million, indigenous peoples are estimated to comprise some 10% or around 9.4 million (<http://www.iwgia.org/regions/asia/philippines>). According to the National Commission for Indigenous People, there are more than 110 Indigenous Cultural Communities inhabiting in twelve major ethno-linguistic regions.

Indigenous communities have kept their cultures alive by passing on their worldview, their knowledge and know-how, their arts, rituals and performances from one generation to the next. Preserving their cultural heritage has also included speaking and teaching their own languages, protecting their sacred and significant sites and objects. It has also included defending and holding onto their lands and territories, since these are fundamental for sustaining them as peoples and cultures (Kipuri, 2010 cited by Hernando 2013).

The Bugkalots are indigenous people of the province of Quirino, located in the Cagayan Valley Region of Northern Philippines. "Ilongot" or "Ilungot" comes from "I," a prefix denoting "people" and "gongot/longot" or forest, and means "people of the forest". A Spanish version is "Engotngot". For historians, anthropologists as well as ordinary people, both today and in the past, the word Ilongot is commonly preferred to any other name, in referring to these people in the mountains (Salgado, 1994 cited by Hernando 2013).

Today, the Ilongots prefer to be called Bugkalots, even in Quirino province, for in the course of history, colonizers attached to the term Ilongot the pejorative connotation of being savages and cruel head hunters (CCP Encyclopedia on Philippine Art, 1994). They are one of the many indigenous groups in the world that is struggling on the preservation of cultural heritage. Language is closely tied with our identity. The language we speak defines us in a major way. Our native language also binds us with others and creates a community of speakers. Something very valuable is lost whenever a language dies.

Quirino Province, which is comprised of only six municipalities and the youngest province in the region, serves as ancestral dwelling of two major tribes namely Bugkalot and Agta. Most of the Bugkalots are living in the municipality of Nagtipunan, Quirino where they are already awarded with a Certificate of Ancestral Domain Title.

Bugkalot culture is rich. However, only few young ones know the richness of their culture since it is not recorded and only few uses the native Bugkalot dialect in the village. Dialect and language at large binds a culture. Through the use of the native dialect, their identity is being transmitted from one generation to the next. It is language and dialect that carry the nature and character of who we are and how we relate with one another and to all things we experience in life.

Endangered dialect communities such as those found in Quirino Province also stand to lose valuable cultural practices, such as oral histories, traditional songs and poetry,

and other art forms that are tied to language. Philippine linguistics is at risk for losing half of the subject matter it studies. The study of linguistics, along with other academic disciplines, benefit from the information found in endangered dialects such as the Bugkalot .

Due to the influence of other socio-linguistic groups in the village, the Bugkalot dialect is seldom used. The non-usage of the dialect over time might lead to endangerment or worst, eventual death of the dialect.

The purpose of this case study is to explore the use of Bugkalot native language and the factors that cause its non-usage as perceived by the Bugkalots in Landingan, Nagtipunan, Quirino, Philippines. Specifically, this study sought to (1) document the attitudes towards the dialect; (2) capture the factors that lead to its usage and non-usage; (3) identify the measures or efforts done by the community to preserve the dialect; (3) make a booklet of Bugkalot words. This is needed because indigenous communities are rapidly changing due to acculturation, migration and globalization. There is a need to document their dialect or words since the knowledge informants are passing away and the dialect is gradually eroding.

Methodology

The study used qualitative research design and the strategy used was case study. “Case study is a strategy of inquiry in which the researcher explores in depth a program, event, activity, process, of one or more individuals. Cases are bound by time and activity, and researchers collect detailed information using a variety of data collection procedures over a sustained period of time” (Creswell 2009). The approach used was descriptive because the method emphasizes on the “present status of a phenomenon, describes a current situation, determines the nature of prevailing conditions or practices and seeks accurate description of entities, objects, persons and processes” (Fox, 1989).

Other anthropological research strategies like field visits, interviews, and focus group discussions (FGD) were also used in this study since it sought to document the factors that cause the gradual dialect loss of the Bugkalots in the village. Before the actual field work, necessary protocol was made to the Tribal Chieftain, Mayor, local officials, elders of the community and the school principal.

The research was supported by Sikolohiyang Pilipino methods such as “pakapa-kapa” approach considering that the researcher is new to the research area and its people. The data collection was made through pagmamasid, pagtatanung-tanong, pagdalaw at pakikisangkot. Validation of the recorded words and their meanings was done through FGD. The participants of this study were selected through purposive and snowball sampling method. Students with parents who are both Bugkalot, and students with at least one parent who are Bugkalot were selected. The first participant was asked to recommend a student whom he/she knows meets the criteria.

Key informants for the focus group discussions were the Bugkalot parents and elders. A non-structured interview schedule was used for the student research participants and a discussion guide was used for the parents and elder participants. Lastly, the

study utilized content analysis of the qualitative responses and themes were developed.

Theoretical Framework

The challenge of preserving the Bugkalot dialect is important to the Filipino nation, to the local community and to the Quirino State University because such dialect and cultural threats do not originate from within the indigenous communities themselves, but instead, they pertain to the external phenomena that stems from different factors. Thus, the solution should acquire the mode of a multi-sector initiatives and efforts.

A study pointed out that one of the most critical causal variables in language endangerment is the disruption of the intergenerational transmission process (Adegbija, 2001). It is essential to note that language does not exist without a speech community. Hence any form of changes in the language processes must really affect the indigenous peoples. There is important evidence that those regions and communities with higher incidences of language death refer to the regions and communities with corresponding higher rates of socioeconomic dependence. Hence, language preservation expert points to the direct connection between societal power relation and consequent language loss.

Crawford points out that, “after all, language death does not happen in privileged communities. It happens to the disposed and the disempowered; people who most need their cultural resources to survive” (Crawford, 2001). In a sense, the indigenous peoples refuse to identify with their basic heritage language when they believe that this identification is detrimental to the pursuit of a bright future for them. This pertains to an attitude that is then reproduced in the speech community. Its primary cause comes from factors encompassing political suppression, social discrimination, and economic exclusion. Crawford explains the loss of culture that comes with language death also results in decline in the sense of self-worth, which limits human potential to solve problems, encompassing poverty, family breakdown, school failure, and substance abuse (Crawford, 2001).

Cummins (2000) pointed to the transformative pedagogy that takes place in the context of an interaction between educators and students in which both are empowered. Given this set-up of intensive collaborative exchange, Cummins states that students are enabled to relate their personal and community experiences to the curriculum content. They also get to analyze the significant social issues relevant to their lives.

Cummins’ framework seems clearly justified because the conventional pedagogy has led to “historical patterns of underachievement among marginalized groups to the devaluation of identity that has typically been played out in the interaction between educators and students” (Cummins, 2000). The means for devaluation of identity has negative effects on the children and consequently for their parents and cultural communities, since the children are transformed into underachievers academically and by extension, into underachievers at both personal and social levels.

As Cummins states:

This devaluation of linguistic, cultural and academic identity reflected the pattern of coercive relations of power that characterized intergroup relations in the broader society. Under these conditions, students quickly became convinced that academic efforts were futile and many resisted further devaluation of their identities by mentally withdrawing from participation in the life of school (Cummins, 2000).

The withdrawal from the life of school also reflects as being a withdrawal from the participation in building the life of the community and the society. Transformative pedagogy is a key instrument to swiftly reverse the historical process of underachievement since affirmation of identity in the classroom is critical to the preservation of the Bugkalot language.

Results and discussions

The main findings of this research are divided into three parts: dialect attitudes, perceptions on the causes of dialect loss, and the compilation of native words with their Tagalog counterparts.

Attitude toward the Bugkalot dialect

To reflect the research participants' attitudes toward the dialect, two major questions were asked for both the students and parents: What dialect do you prefer more; and, "What dialect do you want your children to learn first?"

From the students' point of view, they like their native Bugkalot dialect but they prefer to speak Ilocano in school. The reasons that emerged are: (1) they can socialize better with their other classmates by communicating in Ilocano; (2) they can feel the essence of belongingness by speaking the dialect of the majority in the village; (3) it feels good to speak in Ilocano.

It is interesting to note that the participants do not feel any form of inferiority or discrimination when they like to speak in their own native dialect in school when they meet their fellow Bugkalot. In terms of frequency on speaking their dialect, they speak it when they want their Ilocano classmates not to comprehend what they are talking about and when they share secrets with their fellow Bugkalots. Ilocano students do not bully them when they speak; instead, they are interested to learn their dialect too. With this, they are not ashamed of their native Bugkalot dialect. But still, they admit that they have the notion and feeling that Ilocano is a better, more powerful and more influential dialect.

The students also admitted that when they will have their own children, they will teach them Ilocano first since it is easier and there are more speakers of this language than their native tongue. Acquiring fluency in dominant languages will help them and their children to find jobs and be successful. Present Bugkalot children also have a role in this process, and often it is the children who make the choice to stop learning their ancestral language and use the dominant language exclusively to improve their chances in getting better jobs.

From the parents' point of view, even if they prefer the Bugkalot dialect for themselves; they hardly use it at home. They believe it is in the best interest of the children if they learn Ilocano as first dialect. For them, the children should be taught the language used in school, and learning Bugkalot first may interfere with the learning of Ilocano or Tagalog. In the course of the interview, they said that they may still learn the native Bugkalot dialect when they grow older. In addition, some parents fear that speaking the native dialect at home will hamper the child's acquisition of the more economically valuable language such as Tagalog, English and Ilocano.

Drawing from the study of Adegbija (2001) one of the most critical causes in language endangerment is the disruption of the intergenerational transmission process. In this research, the intergenerational vertical transmission (parents to children) based from the findings, is already disrupted as parents prefer their children to learn Ilocano at an early age and speak the same language in order for their kids to be adjusted easily in school instruction and in terms of socialization with peers as well as with their teachers. Bugkalot is seldom spoken at home with adults and its proficiency and command has been stagnating, since the focus in school is Tagalog/ Ilocano, and English that keeps children away from consolidating Bugkalot competence with regard to grammatical structures and vocabulary, which is at best sporadically expanded. The continuous disruption of the transmission of Bugkalot language may eventually lead to its endangerment, or worst, death of the language.

Perceived causes of non-usage

Declining number of speakers

During the focused group discussions with the adult participants, one of the themes identified was the declining number of speakers. Quoted from an elder, "*bassit kami a puro ditoyen, bassit kami nga agsasao iti Bugkalota agsasao kami laengen ti Bugkalot nu agkikita kami a panglakayen*". There are few pure Bugkalot in our place now, which resulted to lesser number of Bugkalot dialect speakers. The dialect is only spoken when we meet our fellow Bugkalot. Young Bugkalots speak Ilocano more than Bugkalot."

Another participant added, "*dagijay annak ku nga lallaki ket Ilocano ti asawa da, Ilocano metten ti usaren da nga sarita haan nga Bugkalot.. Ilocano ti sau dan ijay balbalay da. Agsao kami laengen ti Bugkalot nu agkikita kami.*" My sons married Ilocano women, and they speak Ilocano in their homes. They teach their children Ilocano. We only speak our native dialect when we meet.

The decline in the number of speakers is a result of intermarriage with another socio-linguistic group. This is one factor that contributes to the lesser use of the native dialect. Preference to speak Ilocano in their homes slowly erodes the use of Bugkalot dialect since children will be more fluent in the Ilocano dialect than the Bugkalot. This findings support Crawford's (1996) hypotheses of language loss where he said that, one of the causes of language loss is that there are growing number of parents who fail to teach the language to their children. In this case, Bugkalot children's knowledge and fluency on their native dialect will be affected as younger ones prefer to speak the dominant societal tongue in the village. This preference is influenced by the parents' choice that their children must learn Ilocano first.

Another reason why Bugkalot dialect is not taught: *“Narigat nga isao ti sarita mi, sabali. Adda iti pwersa na ken sabali a balikas mi. Nalaklaka nga adalen ken isao iti Ilokano ngem iti sao mi. Mas dominante iti Ilocano nga sao ngamen, pati nu aglako kami iti produkto mi, Ilocano iti sao mi”*.

Our dialect is different. It is difficult to learn and teach: the diction, intonation is very much different from that of Ilocano dialect. We prefer to use Ilocano when there are traders who go to our village; it is more prestigious and economically dominant. Traders, who go to the village, talk with the Bugkalots in Ilocano. It is the medium used and understood both by the traders and buy the products in the village.

Bugkalot speakers themselves see their dialect as tough as displayed in their facial expressions when asked why they do not teach the traders to speak the language. They admit that there is difficulty in teaching the proper intonation, pronunciation and diction of Bugkalot. These were their reasons why they prefer Ilocano.

Based from the participants' statements, language assimilation has taken its toll. Bugkalots had assimilated the culture of the Ilocanos specially the married ones. It started with the language. In theory, the process of assimilation may be voluntary or may be forced upon a population. Speakers of some languages particularly regional or minority languages may decide to abandon them based on economic or utilitarian grounds, in favor of language regarded as having greater utility or prestige. Slowly this is happening in the village, from domains where the language was once secure-like the family, the school, and in daily economic activities like trading.

Education

Education is viewed as a factor that causes the non-usage of the dialect. An elder said that educated Bugkalots prefer not to stay in their place. *“Nu addan adal da ket madi da kayat ditoy lugar min. Mapan da idiay ili ken jay Maddela”*. Educated Bugkalots prefer to stay in Nagtipunan proper or in Maddela rather than in the village for obvious reasons, that is, due to physical proximity to their work place and the school.

In general, the education and out-migration from the Bugkalot community to the mainstream society had certainly weakening effects on the participants' perception toward the Bugkalot language. Because of the constant exposure with the non-Bugkalot speakers, the participants who may not have established strong ties with the in-group and their ancestral language have the tendency to identify more with the out-group.

Basic Efforts to Preserve the Bugkalot dialect -Transmission and Maintenance

The process of transmission as well as the maintenance of the dialect in the village can be clearly explained and understood in the context of the basic organization of the extended family social structure. The extended Filipino family structure enables both vertical and horizontal intergenerational language transmission.

Vertical transmission is far more coextended and allows both vertical and horizontal intergenerational language transmission. Vertical transmission is seen to be more complicated compared to the unidirectional parent-to-children language transmission

as it includes the intergenerational language transmission from grandparents to grandchildren, from uncles and aunts to their corresponding nieces and nephews, from godparents to godchildren, and also from adult neighbors to youth and child neighbors.

The primordial role of the grandparents is quite important in the Filipino culture. The grandparents are still active in language transmission to their granddaughters and grandsons and grandnieces and grandnephews. This complex family social structure which is unique to the inherent Filipino culture also explains why the vertical intergenerational language transmission, such as the biological mother-to-child may pave the way for the continued and evolving use, maintenance, and preservation of the Bugkalot dialect.

The multidirectional dimension of language transmission operates in this way: language transmission and learning is generally a two-way process, and not a one-way only dynamics, particularly to the Bugkalot dialect transmission given the context of the Filipino extended family structure. The elders in the community can learn something about their own language and culture from the youngest family members. For example, during the vertical language transmission from parent to his toddler, the toddler is not a passive receptor. The toddler could say something, respond to, and even to ask something from the parents.

There are some factors that are quite instrumental for predicting the future of the Bugkalot dialect. In a rather bilingual environment, the future parent generation (the current primary school learners) displays another competence and proficiency as well as second language use that, by and large, exceed that of the dialect. The far-going expanded language exposure in Ilocano and English strongly affects their competence in developing and mastering specific Bugkalot dialect skills.

Coupled with strong formal and moral second language support, the chances of Bugkalot dialect to be transmitted in the future to another young generation diminish drastically over time. It is not likely that present-day children will help assimilate and reinforce their proficiency after leaving the formal education system.

Accordingly, the total language development observed and documented is quite threatening. The campaign for mastery in Ilocano, Tagalog, and English languages already has a negative impact on the position of Bugkalot dialect in the sense that the total number of Bugkalot speakers is decreasing. While these days inter-generational Bugkalot transmission still takes place, Ilocano and English competence building is stagnating or eroding as the result of the English imposition in formal education.

It can be inferred from the discussion that the current Philippine language policy and its implementation in formal education is of central relevance for the Bugkalot dialect's future. Hence, if this language policy were to stipulate that Bugkalot should be used in school in a sort of additive approach, the learners would certainly become better skilled speakers. This, in its turn, would enable them to use Bugkalot more widely.

The Philippine government at least officially recognized the language of indigenous peoples. This present policy still lacks a comprehensive edge, as it does not foresee

any particular role for the Bugkalot dialect in Philippine society. Nor does it hold out prospects of supporting follow-up steps in developing the local Bugkalot dialect to the perennial problem of lack of funding. School officials recognize the complex linguistic situation that they are faced with but are hesitant to offer a viable solution which is supposed to address the future of the Bugkalot dialect in this community. In sum, the emphasis on the usage of Ilocano, Tagalog, and English has a strong impact in education. To a large extent, this undue emphasis has been responsible for the consequent language shift and Bugkalot dialect endangerment in this community.

In support to the efforts of preserving the dialect and the UNESCO's urgent call to protect the indigenous dialects and languages of the world, a booklet of words with the title "MA LEBDU NU BUGKALOT" was made before it will be lost forever. This booklet contains Bugkalot words and the Ilocano counterpart.

Conclusion

The Bugkalot student research participants like their native Bugkalot language but the preferred language is Ilocano due to socialization, easy comprehension, and the feeling of belongingness to the majority group. Parents prefer to teach their children Ilocano first since this is used in school. Teaching Bugkalot language first interferes with the learning of the mainstream language.

The perceived causes of non-usage of the language are: declining number of speakers, education, and out-migration from the village.

Basic efforts are done by elders in the village to preserve the dialect but younger generations seldom speak the dialect.

Recommendations

The use of the Bugkalot dialect within the context of the domain of everyday life among adults and young populations can help in the efforts of the preservation of the dialect. This can be done through the direct transmission from parent to children. The adults can be encouraged to exercise preference to use the Bugkalot dialect as the primary medium of communication in routine and everyday conversation. This daily and regular practice will not constitute a vertical language transmission per se, but it represents a magnificent opportunity for language exposition and acquisition by children. Compulsory use of the dialect in rituals and celebrations can also prevent the eventual loss of the dialect. A Bugkalot Dictionary may help a lot both the old and young generation; and related studies are further recommended.

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Constructing the Principal Technology Leadership Competency Indicators for Vocational High School in Taiwan

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Abstract

The purpose of this study is to construct principal technology leadership competency indicators for vocational high school to raise the effectiveness of school administration and teaching. To achieve the purpose, the first is to interview with field expert and explore the technology leadership theorem model. The second, eighteen experts in technology leadership and the principal of vocational high school are recruited for participants in the Delphi technique questionnaires and construct principal technology leadership competency indicators. The third, questionnaire data was proceeded via Kolmogorov-Smirnov one sample test and Kruskal-Wallis one-way analysis of variance by ranks, to prove the consistency of opinion of all experts. Finally, six dimensions, (1)the leadership and vision, (2)the learning and teaching, (3)the productivity and professional practice, (4)the support, management, and operations, (5)the assessment and evaluation, and (6)the social legal and ethical issues, and thirty competency indicators of principal technology leadership for vocational high school in Taiwan were found.

Keywords: vocational high school, competency analysis, technology leadership

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1. Introduction

Competency may mean the intellectual or physical ability to perform some task. A broader definition of this term, which is used in this context, includes attitudes as well as skills and knowledge. Thus, for example, Spencer and Spencer (1993) referred to such competencies as knowledge, skills, positive attitudes, personal values and self-motivation, which can be both observable and non-observable. Bailey (1997) have identified eight important themes for leaders who want to integrate technology effectively: change with developments in technology, budget and planning for technology, professional development of personnel involved in technology, technological infrastructure, technical support in the implementation of technology, learning and teaching with technology, a curriculum in which technology is integrated, and individuals who consider themselves to be technology leaders. Cakir (2012) showed that school administrators, who have the primary responsibility for technology integration in the schools, and computer teachers, who play an important role in the integration of technologies in the classroom, have a high degree of interest in and a positive attitude towards technology.

2. Function of competency analysis

Competency analysis identifies the behaviors required for professionals to perform job-related tasks. Identified behaviors included motive, characteristic and skill; or knowledge of the fundamental characteristic. Specifically, competency refers to the employee performance required to work effectively, especially when adequately playing a role or undertaking a task. Thus, competency is not only an aggregation of knowledge, skills, and attitudes, but also a dynamic concept of putting theory into practice. More specifically, competency also refers to the ability to achieve an outcome in a specific situation (Chao et al., 2003). McClelland (1973) suggested the term competency as a criterion for judging successful performance. Competency frameworks have been applied in various settings - for example, for assessing company managers and employees, as training and recruitment tools (Rifkin et al., 1999). So (2006) characterized these as attempts to define the human resource needs of a knowledge-based and capitalist society.

3. Delphi technique

The Delphi Technique is widely used and accepted for gathering data from respondents within their domain of expertise. The technique is designed as a group communication process for achieving a convergence of opinion on a specific real-world issue. The Delphi Process has been used in various fields of study, including program planning, needs assessment, policy determination and resource utilization, to develop a full range of alternatives, explore or expose underlying assumptions, as well as to correlate judgments in many disciplines. The Delphi Technique is well suited as a technique for consensus building by using a series of questionnaires delivered using multiple iterations to collect data from a panel of selected subjects.

Any staff member who assigned a rank derived by 10 or more points from the corresponding first Delphi median rank was requested to state the rationale for the dissenting opinion in the space below the problem. Concerning the appropriate

number of subjects for performing the Delphi Technique, researchers should use the minimally sufficient number of subjects and should verify the results by follow-up explorations. The number of experts used in a Delphi Technique is generally determined by the number required to constitute a representative pooling of judgments and the information processing capability of the research team. However, the literature reveals no consensus as to the optimal number of subjects required to perform the Delphi Technique. Researchers suggest that 10-15 subjects could be sufficient if the background of the Delphi Technique subjects is homogeneous (Delbecq et al., 1975).

4. Methodology

4.1 Questionnaire design

To fulfill research objectives, a questionnaire was designed to collect data in 6 domains: (1) leadership and vision, (2) learning and teaching, (3) productivity and professional practice, (4) support, management, and operations, (5) assessment and evaluation, and (6) social legal and ethical issues; and to collect 30 competency indicators of principal technology leadership for vocational high school. Each competency was rated by its importance to technology leadership in the principal technology leadership. A Likert Scale was used in this questionnaire. Members of the Delphi Group were asked to assess each competency according to the following 5-point scale: "5-very important", "4-more important", "3-somewhat important", "2-less important", and "1-least important" in their technology leadership.

4.2 Participants

Eighteen experts in technology leadership and the principal of vocational high school are recruited for participants in the Delphi technique questionnaires and construct principal technology leadership competency indicators. Six of these had research experience in technology leadership. Six of these are the principal of vocational high school in Taiwan. Six of these are the director of vocational high school in Taiwan.

4.3 Instruments

Questions were developed and verified with technology leadership field experts as to content validity. Thirsty questions for the Delphi Technique were examined. These mainly concerned the experts' experiences in technology leadership and their thoughts and experiences. The pilot version of this instrument was reviewed by technology leadership field experts and in the light of their feedback; revisions were made several times to all items considered confusing or ambiguous in order to establish consistency of wording and format.

4.4 Data analysis

For the data analysis, descriptive analysis was adopted for mode (Mo), means (M), standard deviations (SD), the Z-value of the K-S Test, and Kruskal-Wallis one-way analysis of variance by ranks (χ^2).

5. Results

The K-S test found that a value equal to 0.05 was statistically significant and that participants considered the items more important and consistent. In terms of the importance of principal technology leadership, the mean score for 30 working

competencies in six domains were above 4.17, which indicated that the Delphi group considered the competencies listed in the questionnaire to be "more important". The Kruskal-Wallis one-way analysis of variance by ranks (χ^2), to prove the consistency of opinion of all experts and the items that participant considered important.

6. Conclusions

All 30 competency indicators that were ultimately identified revealed importance and consensus to be incorporated into a principal technology leadership. The analyses found that the consensus-building process did progress as anticipated and that it was successful in identifying and validating the principal technology leadership competency indicators demanded. The data analysis revealed decreased standard deviation and increased means, which are both indicative of an increase in consensus.



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The Relationship of Mathematics Learning Achievement, School Life, and Language Ability of Southeastern Asian Female Immigrants' Children in Taiwan

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Abstract

As the number of female immigrants from Southeast Asia increases at Taiwan for these years, and it mean more and more Southeastern Asian female immigrants' children were born in Taiwan. Immigrants' children were disadvantaged due to language, cultural and social interactional conflicts between home and school. This study focus on 519 elementary school students that was include 260 new immigrants' children and 259 residents' children in Taiwan. The data would be analysis with latent growth analysis with three years data. The early mathematics learning achievement was not relative the change of mathematics learning achievement in these three years. The early mathematics learning achievement of new immigrants' children and residents' children was different, but the change of mathematics learning achievement of new immigrants' children and residents' children was not different. New Immigrants' children and residents' children were different in teacher relationship, peer relationship, and language ability. The change of language ability of new immigrants' children and residents' children were different in these three years. Early teacher-student relationship and early peer relationship were helpful for the early mathematics learning achievement of new immigrants' children, but for reduce the gap of mathematics learning achievement between new immigrants' children and residents' children, the elementary school teachers should improve the language first.

Keywords: Immigrants' children, Learning achievement, School life, Latent growth curve model

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Introduction

As the number of female immigrants from Southeast Asia increases at Taiwan for these years, and it mean more and more Southeastern Asian female immigrants' children was born in Taiwan. Immigrants' children are disadvantaged due to language, cultural and social interactional conflicts between home and school (Akar, 2010). Usually, students whose native language is different from the language used for the instruction belong to the minority or immigrant groups that are economically disadvantaged compared to the other students (Mohammadpour, 2013). Immigrant parents who speak a foreign language often have less cultural capital to share with their children, weaker relationships with their children's teachers and less understanding of school norms. Immigrants' children often have weaker understanding of teachers' and classmates' expectations, which can limit their learning opportunities and yield less learning, compared to native children (Chiu & Chow, 2010).

Some studies pointed out that the learning achievement of new immigrants' children were not as well as residents' children, especial in language learning (Mohammadpour, 2013; Akar, 2010; Chiu & Chow, 2010; Ho, 2006). But some studies supported that the learning achievement of new immigrants' children were the same as residents' children in school (Hsiao, 2005; Ko, 2004; Wang, Wen, Hsieh, Huang, Huang, Chen, Chen, Tseng, & Liao, 2006; Ministry of Education, 2005).

Traditional data analysis only focused on single data in one time, and it is difficult to find the effect of variable change. Methods of latent growth curve analysis had emerged as a versatile tool for studying longitudinal change, and it was applied in many research areas. The purpose of this study was to investigate Southeastern Asian female immigrants' children's language learning achievement, teacher-student relationship, peer relationship, and environmental perception, and compare with residents' children with latent growth analysis for the effect of the change of school life in three years.

The Teacher-student Relationship

The teacher-student relationship is the interaction of teachers and students. The interaction of students and teachers is one of the important processes of children's learning. The interaction of students and teachers is not only for learning, but also for the transpose of the values of life and learning attitude. Teachers should maintain an effective learning and efficient learning environment, and a good teacher-student relationship (Yang, Tsai, & Ho, 2013). Elementary schools, teachers, students, and parents or guardians can improve teacher-student relationships and communications with information system for improve students' learning achievement (Chen, & Cheng, 2013). A close and intimate teacher-student relationship is helpful in school learning (Lai, & Xue, 2012).

Increase the quality of relationships between teachers and students would helpful in the ability of learning (Shen, McCaughtry, Martin, Fahlmann, & Garn, 2012). Most tutors think new immigrants' children are great, and are good in teacher-student relationship. Chen (2005) adopted purposive sampling to select 331 southeastern Asian female immigrants' children from third-grade to six-grade in the academic year of 92, and find Asian female immigrants' children are well in teacher-student relationship. Nurturing quality relationships between and among both teachers and

peers may hold promise for enhancing learning (Shen, McCaughtry, Martin, Fahlmann, & Garn, 2012). Teachers' attitude is helpful in the success of the students' performance (Othman, & Leng, 2011).

Not the same as above studies, Chin and Yu point out that the children of Southeast Asian immigrants gained significantly lower scores for academic performance and teacher-student relationship than did the adolescents of native Taiwanese mothers (Chin, & Yu, 2008). After interview four southeastern Asian female immigrants' children, Chen (2005) point out that immigrants' children are weak in teacher-student interaction.

The Peer Relationship

The socialization of children is not only dependent on the assist of parents, but only also peer group. Children can learn social skills, establishment of self-concept, and get a sense of security and comfort with the interaction of friends or classmates. In a school, students all come from different family, and their socioeconomic background, habits, and concept are different. In the process of intricate interaction, secondary peer group be formed gradually. If the children adjustment well in the environment, it is helpful in socialization for children. If the children adjustment not well and conflict in the environment, it would become the obstacles on the children's school life.

Increase the quality of relationships between peers may hold promise for enhancing learning (Shen, McCaughtry, Martin, Fahlmann, & Garn, 2012). Peers' understanding is helpful in the success of the students' performance (Othman, & Leng, 2011). Although the computer-assisted learning environment could help students to learn more quickly and conveniently, it is better for students to learn with peer relationship (Huang, & Liu, 2012).

Summarize, the school life include children's interaction with teachers and peer group in the learning environment. This study was focus on the new immigrants' children's teacher-student relationship, pear relationship, and environmental perception.

Materials and Method

This study focused on the mathematics learning achievement, school life, language ability of Southeastern Asian female immigrants' children. The research framework was as Figure 1. The school life included teacher-student relationship, peer relationship.

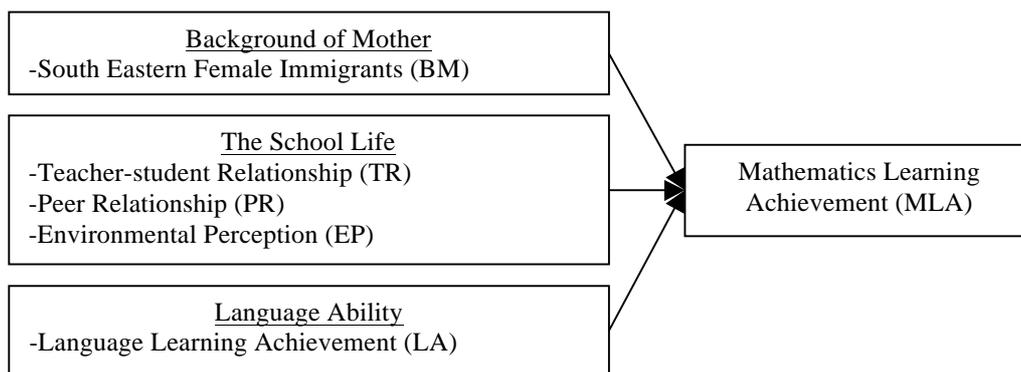


Figure 1: Conceptual framework.

Research Data

The research data was obtained from Wu’s study (2010) in the Survey Research Data Archive (SRDA) provided by the Academia Sinica in Taiwan. Wu’s study was finished in July 31, 2007, and built the database of “The transected and longitudinal study of the southeast Asian immigrant women’s parent-teacher interaction, children’s self-efficacy, and school life in Taiwan”. The research data was parts of this database.

The research data was got from three highest degree of urbanization regions that high ration of the number of new immigrant women marriage accounted for the proportion of total marriages in 2003 in Taiwan: New Taipei City, Taoyuan County, and Taichung City, and the three lowest degree of urbanization regions that high ration of the number of new immigrant women marriage accounted for the proportion of total marriages in 2003 in Taiwan: Yunlin County, Pingtung County, and Penghu County. 150 southeastern Asian female immigrants that children study in primary school were sampled in these six regions. The number of residents was the same as the number new immigrants in each region. The data was got one time one year in three years from 2005 to 2007.

There are 1554 records that include 777 new immigrants’ records and 777 residents’ records in Wu’s database (2010). This study focus on 519 records that without missing value in 3-year mathematics learning achievement, and the score of learning achievement was between .20 to .80 for remove extreme values (the overall learning achievement range was from .00 to 1.00). The missing value in these 519 records would be estimate with expectation-maximization (EM) in IBM SPSS 22.

The learning achievement in Wu’s study (2010) was calculated with Equation 1. It was converted into the relative position of each subject’s rank in the class. The mathematics learning achievement (MLA) and language learning achievement (LA) was be transform from the rank in the class to the score of learning achievement with Equation 1. It could avoid the effect of class sizes on the rank.

$$LA = 1 - \frac{\text{Rank}}{\text{Class Size}} \quad (1)$$

Research Tools

The school life included teacher-student relationship, peer relationship (Wu, 2010). The questionnaire of school life was being built in Huang's study (Cortina, 1993).

Items for the teacher-student relationship (TR) were as Table 1. There were 4 items for TR. The questionnaire was answered with 5 Likert scale for measuring the relationship of the interaction of teachers and students in campus. TR is the attitude of interaction of teachers and students. The more scores mean the more positive attitude of teacher-student relationship.

Table 1: Items for the teacher-student relationship (TR).

Item	Questionnaire
TR01	I often get the teacher's praise.
TR02	I will take the initiative to help the teachers.
TR03	I like to talk with teachers.
TR04	When teacher quiz me, I would answer seriously.

Items for the peer relationship (PR) were as Table 2. There were 8 items for PR. The questionnaire was answered with 5 Likert scale for measuring the relationship of the interaction of classmates and classmates in campus. PR is the attitude of interaction of students and students. The more scores mean the more positive attitude of peer relationship.

Table 2: Items for the peer relationship (PR).

Item	Questionnaire
PR01	I am willing to share everything with classmates.
PR02	When I'm in trouble, my classmates would help me.
PR03	I would play with classmates.
PR04	It is funny that play with classmates.
PR05	It makes me happy that live together with classmates.
PR06	The classmates would like let me join in play game.
PR07	I would like to work together with classmates.
PR08	Classmates would like to work together with me.

The scale reliability of the questionnaire, mean, and variance in this study was as Table 3. The Cronbach's α of TR and PR all above .70, and they were good in internal consistency (Huang, 2005).

Table 3: Scale Reliability of the questionnaire in this study.

Scale	N	Mean	Variance	Cronbach's α
The teacher-student relationship (TR).	4	2.53	.16	.70
The peer relationship (PR).	8	3.13	.09	.93

Methodology of Data Analysis

The data analysis methodology in this study was combining the time-oriented factors and latent variable. The research data was tested the trend of average change in longitudinal study with growth curve model and average structure analysis. This study would focus on one factor that changed or growth with time. How the effect of research variables on the starting average and the direction of the trajectory of the target variable would be tested with the covariance analysis of growth curve model that include.

First, the relationship of early (or initial) state and the change with time of mathematics learning achievement would be tested with the intercept and slope of growth curve model of language learning achievement. Second, the effect of the teacher-student relationship, the peer relationship, and the environmental perception on language learning achievement would be tested with the growth curve model of language learning achievement.

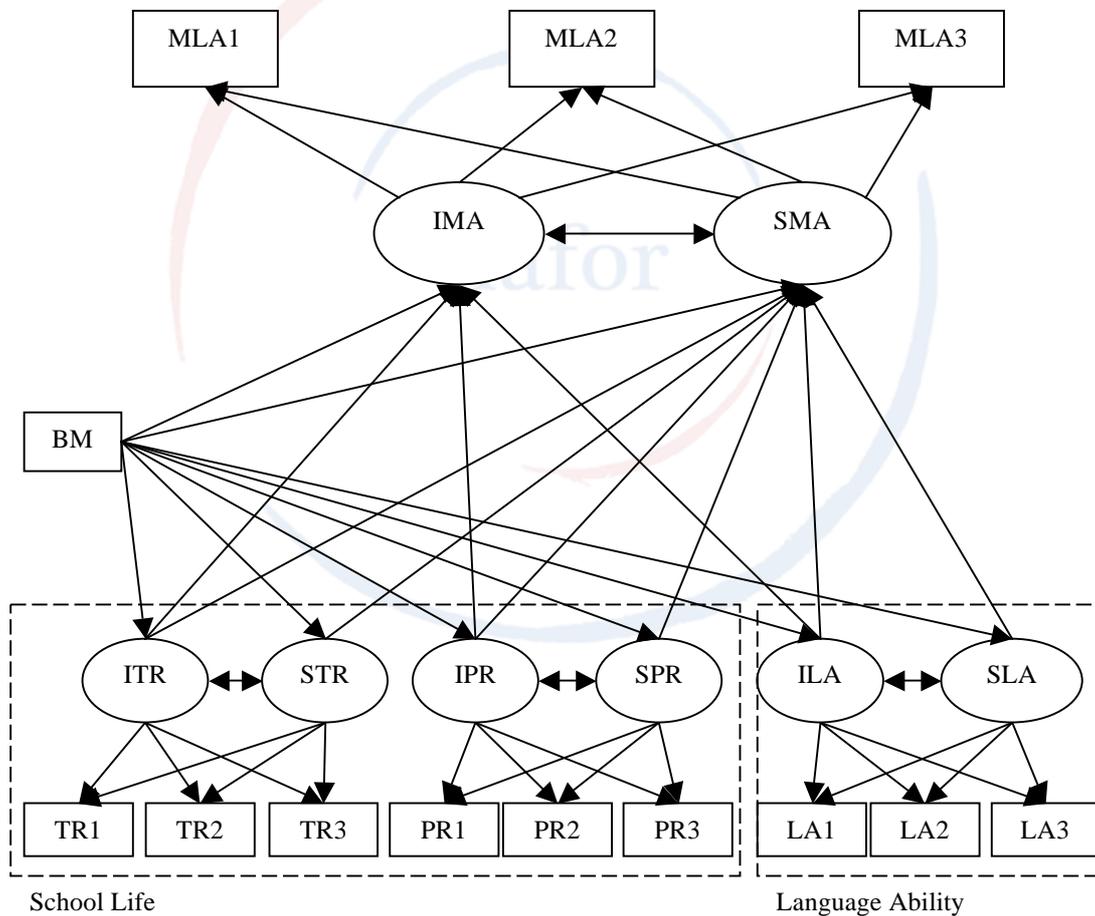


Figure 2: The latent growth model in this study.

The latent growth model in this study was as Figure 2. The data of mathematics learning achievement were got in 3 years (one time in one year) for building the latent variable of intercept and slope (IMA and SMA) of 3 time points of mathematics learning achievement (MLA1, MLA2, and MLA3), and the trace of language learning

achievement in 3 years can be shown with the IMA and SMA in Figure 2. The change rate and direction of mathematics learning achievement can be tested with IMA and SMA.

For testing the effect of the teacher-student relationship, the peer relationship, and the language ability on mathematics learning achievement in different time, they all be build the latent variable of initial state (ITR, IPR, and IMA) and the change (or growth) (STR, SPR, and SMA) based on 3-year data (TR1, TR2, TR3, PR1, PR2, PR3, LA1, LA2, and LA3).

The data would be analysis with Mplus 7.0 and Stata 12. The fit situation of theoretical model and research would be shown with goodness of fit statistics, and the result would be shown with completely standardized solution.

Results

Data analysis applies a multi-step approach in this study. First, the measurement model was tested by subjecting the measures to a series of confirmatory factor analyses. Second, a structural equation model with moderating variable was developed to test the hypotheses.

The summarization of the research data in this study was as Table 4. There were 519 primary school students in this study, and it included 210 male elementary school students (40.46%) and 209 female elementary school students (40.27%). 260 of them were southeastern Asian female immigrants' children (50.10%), and 259 of them were residents' children (49.90%). About the nationality of the mother, 259 of them were Taiwan (49.90%), 60 of them were Vietnam (11.56%), 139 of them were Indonesia (26.78%), 14 of them were Thailand (2.71%), 1 of them were Malaysia (.19%), 16 of them were Philippines (3.08%), 30 of them were Myanmar (5.78%).

Table 4: Data Summarize of this study.

Variable		Frequency	Percent (%)
Gender	Male	210	40.46
	Female	209	40.27
	Missing	100	19.27
Background of mother	New Immigrants	260	50.10
	Residents	259	49.90
The nationality of the mother	Taiwan	259	49.90
	Vietnam	60	11.56
	Indonesia	139	26.78
	Thailand	14	2.71
	Malaysia	1	.19
	Philippines	16	3.08
	Myanmar	30	5.78
City	New Taipei City	57	10.98
	Taoyuan County	87	16.76
	Taichung City	80	15.41

	Yunlin County	119	22.93
	Pingtung County	58	11.18
	Penghu County	118	22.74
Total		519	100.00

Table 6, 7, 8 presents factor loading and other metrics for the item measures as well as reliability and validity measures. Hair, Anderson, Tatham, and Black (1998) suggest that in a sample of 150 respondents. Chi-square test of model fit was 645.13 (df=53, p-value<.01), RMSEA was .15, CFI was .75, TLI was .63, and SRMR was .14.

Mathematics Learning Achievement

The result of relationship of the early (intercept) and the change (slope) was as table 5. The early mathematics learning achievement (IMA) was not relative the change of mathematics learning achievement (SMA) in these three years. The early mathematics learning achievement (IMA) of new immigrants' children and residents' children was different, but the change of mathematics learning achievement (SMA) of new immigrants' children and residents' children was not different.

Table 5: The assessing of measurement model of the language learning achievement in three year.

	F.L.	S.E.	t-value
IMA↔SMA	-.02		.88
BM→IMA	.03*	.02	2.11
BM→SMA	-.01	.01	-1.19

*: p-value<.05

The School Life

The result of the effect of school life and language ability on mathematics learning achievement was as Table 6. It could be found that early language ability (ILA) would affect early mathematics learning (IMA), and early language ability (ILA) and the change of language learning (SLA) would affect the growth of mathematics learning (SMA). Besides, early language ability (ILA) would affect the growth of language ability (SLA).

Table 6: The assessing of measurement model of the school life (SL).

	F.L.	S.E.	t-value
ITR→IMA	.02	.03	.57
IPR→IMA	-.02	.03	-.70
ILA→IMA	.54*	.05	11.36
ITR→SMA	-.04	.02	-1.56
IPR→SMA	.03	.02	1.45
ILA→SMA	.10*	.03	3.11
STR→SMA	.07	.06	1.11
SPR→SMA	.05	.04	1.23

SLA→SMA	.70*	.07	9.54
ITR↔STR	.21		-.78
IPR↔SPR	<.01		.01
ILA↔SLA	.20*		-2.59

*: p-value<0.05

Background of Mother

New Immigrants' children and residents' children were different in teacher relationship, peer relationship, and language ability (ITR, IPR, and ILA) (Table 7). The change of language ability of new immigrants' children and residents' children were different in these three years.

Table 7: The assessing of measurement model of the background of mother (BM).

	F.L.	S.E.	t-value
BM→ITR	.16*	.05	3.37
BM→STR	-.02	.03	-.64
BM→IPR	.14*	.04	3.37
BM→SPR	.01	.03	.27
BM→ILA	.05*	.02	2.57
BM→SLA	-.03*	.01	-2.59

*: p-value<.05

Discussion and Conclusion

The early mathematics learning achievement of new immigrants' children was weak than residents' children. The growth of mathematics learning achievement of new immigrants' children and residents' children was not different. The early language ability would affect early mathematics learning, and early language ability and the change of language learning would affect the growth of mathematics learning. Besides, early language ability would affect the growth of language ability. New Immigrants' children were weak in early teacher-student relationship and peer relationship, and this result was the same as Chiang (2005), Chen and Cheng (2013), Shen, McCaughtry, Martin, Fahlmann, and Garn (2012), and Othman and Leng (2011). The early language ability and the growth of language ability of new immigrants' children was weak than residents' children. This result was the same as Mohammadpour (Mohammadpour, 2013), Akar (2010), Chiu and Chow (2010) and Ho (2006).

Summarized, the different of mathematics learning achievement between immigrants' children and residents' children was come from early mathematics learning achievement. The main factor of mathematics learning achievement for immigrants' children was language ability. Language ability not only affected early mathematics learning achievement, but also the growth of mathematics learning achievement. Early teacher-student relationship and early peer relationship were helpful for the early mathematics learning achievement of new immigrants' children, but for reduce the gap of mathematics learning achievement between new immigrants' children and residents' children, the elementary school teachers should improve the language first.

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Space[Less]City : Students' Perceptive Journey beyond Urban Analysis

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Abstract

In Architectural Design classes as in Architectural everyday practice, preliminary urban analysis is a mandatory step of the design process in the understanding of opportunities and constraints of a specific project for an urban site. Classic analysis based on the study of existing cartography and on the production of abstract diagrams is no longer appropriate. In order to fully engage the rising complexity of contemporary globalized cities, a more experiential and perceptual approach is needed in order to define new “mapping” strategies which will allow for a holistic assimilation of peculiar urban conditions.

In this presentation, I will illustrate the outcomes of the first assignment given to students for my 5th year Architectural Design Studio called “*Space[Less]City*” at the American University of Sharjah. The site for their project, a recent developed neighborhood in the outskirts of central Sharjah, shows all the issues of contemporary globalized peripheries. There is a severe lack of public spaces, community facilities, proper transportation and even sewage infrastructures. In the first week of the course, students were asked to observe and analyze the site as personal and perceptive journey to identify the complex sublime aesthetic of this peculiar area. They were free to choose the media of representation of their holistic urban analysis. Artistic performances, on-site installations, and an exciting public event involving the local community were the pedagogical outcomes of the assignment.

Keywords: Architecture, Urban Analysis, Cities, Architectural Design, Performances

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Introduction

Urban analysis is a mandatory study every architect must undertake with the aim of understanding the context of a project designed on sites located within human settlements. Nowadays, cities are complex organisms. Places, or *Non-Places* (Auge', 1995) of endless transformations and adaptations. In order to be able to elaborate a proper architectural proposal, designers must become aware of peculiar conditions, opportunities, and constraints embedded within the location of their future project. In this light, the analysis (and the criticism) of the existing urban morphology has traditionally been the most important feature which architects would investigate as driving force of their future design decisions. While looking at the "form" of the city, designers records and interpret spatial structure characteristics. Rational or organic patterns of developments are recognized and measured not only in their *status quo* but also considering their growth and expansion through time.

Other data can be collected by morphological analysis which includes land use, existing building typologies, influence of infrastructure, pedestrian and vehicular circulation. Considering the raising complexity of contemporary cities, classic methods of urban analysis have soon shown their limits (Robson, 1969). The inadequate gathering of information derived solely from the observation of the city's built form provided an incomplete and often deceptive understanding of the real scenario. Therefore, in recent years, a more holistic approach was undertaken in order to achieve a more exhaustive comprehension of urban sites. Other existing factors were added as categories of analysis such as environmental characteristics, perceptual features, and social settings.

Urban analysis' fields of investigation:

Every urban analysis exercise is conducted in order to understand the current urban condition of the site (which is the result of historical transformation and modern expansion), through collection of data about its social, morphological, functional, environmental, and perceptual characters in relation to both local conditions and larger scale. In detail, these categories can be further described as such:

-Historical

Development of the historic fabric, its evolution, loss and reconstruction, including the impacts of modernization, roads and services.

-Social

Analysis of the existing local community and potential for future inhabitants derived by the introduction of new functions or implementation of the existing ones.

-Morphological

Analysis of the existing urban morphology: Volumes, density, grids, typologies, roads network & hierarchy, circulation, accessibility, relationship with main city infrastructures, site levels, architectural styles.

-Functional

Analysis of the existing functions in the surroundings at local and large scale.

-Environmental

Analysis of the local environmental characters: climate, prevalent winds, humidity, orientation, sun path and shade, different types of vegetation.

-Perceptual

Analysis of the perceptive parameters of the area: existing and potential views, accesses, enclosure vs. openness, security, masses vs. voids, colors, materials, edge conditions, nodes, landmarks.

Even if the field of research was widened, including all the above described new factors, the way the analysis was represented did not change substantially. The main outcome of the investigation used to be, and still are, visual maps describing through a range of graphic diagrams conclusions of the study. Maps are abstract representations of the object of the analysis and can represent several issues depending on the subject of investigation. Maps are produced in order to communicate. Hence, the collection of data and the resulting representation of outcomes should be as accurate as possible. In the latest years this approach has changed. There has been an increasing awareness of subjectivity implied in any form of analysis.

Since maps or diagrams are produced by a subject (the analyzer) they are always subjective. In this sense if we make abstract representations (maps, drawings) we are not so much revealing knowledge but we are creating knowledge (MacEachren 2004). Therefore, preliminary urban analysis can be defined as “preliminary design” when designers begin during this phase their decision-making process. Even if categories of examination are now increased in order to achieve a more holistic process of analysis, I believe there is still an issue about the limitation of being always represented as an abstraction through visual maps. More and more in recent years diagrams are becoming graphically intriguing but at the same time very obscure to understand. Moreover, the whole process of exploration remains mostly based on scientific data or direct observation of existing cartography which cannot fully describe the complexity of contemporary urban areas subject to ongoing transformations. A more cognitive and perceptive approach should side (and support) classic analysis methodologies in order to include factors which were ignored before although often crucial for the completeness of the study.

Urban analysis assignment as perceptive journey

The course ARC501 at the College of Architecture, Art and Design of the American University of Sharjah is the fifth year Design studio of the first semester of the academic year. From the course description: The course “employs advanced design tools to respond to complex architectural projects in a topic, capstone or collaborative studio setting” and it “addresses the discipline of architecture at various scales ranging from conceptual investigations to full-scale fabrication and urban design”. The chosen project for the semester was a community center located in a peripheral area of Sharjah. A building that would accommodate a complex of different functions for a total of 19000 square meters. The course task was to design a mix used building located within a very problematic area of Sharjah named Muwaileh, near the University City area. The neighborhood is a very recent settlement rapidly built in the last few years as the majority of the city of Sharjah. It is mostly inhabited by

newcomer immigrants. A common feature of these recent developments is the dramatic lack of essential infrastructures and services.



Figure 1: Muwaileh, Sharjah

The area is next to an industrial compound and it is nestled between high-traffic roads making it one of the cheapest neighborhoods to live in the entire region. Moreover, the quality of buildings and architectural solutions is very low, contributing to the perception of a generic and ordinary “image of the city” (Lynch, 1960) which alienates the sense of belonging to a specific place. Goal of the proposed community center was to become the crucial point of the neighborhood raising the local identity and sense of belonging. In the first week of the course, students were asked to observe and analyze the site as personal and perceptive journey to identify the complex sublime aesthetic of this peculiar area. They were free to choose media of representation of their holistic urban analysis in order to go beyond the traditional understanding of an urban context through its cartography.

The seminar Space[Less]City was a personal and perceptive journey to identify the complex sublime aesthetic of a city without urban spaces. On-site installations and the creation of a public event, such as the projection on a building blank side wall of a Bollywood movie, were used as media to represent students’ analysis. The class was divided in 4 groups. 2 groups worked inside the school building while the other two worked on site. Artistic performances, on-site installations, and an exciting public event involving the local community were the pedagogical outcomes of the assignment. In the first project “*Pace of Space*” students intended, through a documentary video, to showcase various experiences of spatial typologies found in the area.

Pathways, on each of the prevalent functional zones such as institutional/schools, residential/families, and residential /workers, were continuously walked on a trail. The aim of the video was to show the spatial composition of the area in order to have a sense of feeling in a journey of space. The three pathways started in different points but ended up at one single point which was the project site. The installation of a maze of wires on a wooden board, presented with the video, illustrated the different nodes and connectivity of the place through the mapping of their journey.

A very rational method was used for the production of the performance “*Where are you?*” At first, through a phase of investigation students found out that the site was dealing with issues of “lost space” or inadequate use of space. The existing urban grid, repetitive geometry, and lack of careful planning was noted and recorded. Students also noticed that places in between buildings, as well as the facades, were

not designed with human social needs in mind. Hence, there were very narrow and badly designed/ maintained walkways between buildings, lack of public plazas, and of balconies. As theoretical proposal, students, engaged the absence of spatial meaning they found on site. Their project was a performance/ installation that integrated light, sound, and interaction with viewers emphasizing the human need for urban space. Viewers where invited to enter a dark room where students/actors hiding behind a curtain asked questions about the relationship between the audience physical status and the space where they were immersed. Viewers were therefore forced to focus on their way to experience the specific spatial setting.



Figure 2: Lounge in Dunes

The purpose of the project “*Lounge in Dunes*” was to examine the effect of an intervention on a site lacking identity by its temporary occupation. Again students noticed how the site was a “display of predetermined incomplete grid, which guides the placement of functions and buildings”. The area of the intervention was patched, leaving behind unplanned, uninhabited leftover areas. The result was an unbalanced combination of spaces and masses all of which lacked identity, hence an area searching for a meaning.

With these prerogatives in mind, students built a circular light installation in order to define a portion of land between existing buildings. The open room created was then furnished with a carpet and pillows as a Majilis in the open desert. Music was played for that night while tea was served. The installation was visible from several buildings and from apartments even at very high floor. Thus, wondering what was going on, curious inhabitants joined the event enjoying the temporary public facility. Whole families arrived from their flats bringing children and old parents. Many asked if we could leave the installation permanently there.

The last project, “*Adaptive Spaces*” involved the community of the neighborhood at larger scale. From the description of the project: “In a land of contrast, buildings are scattered around the area in a seemingly random manner, plugged in a sandy desert, lacking important urban infrastructure elements such as roads, parks, and public squares. The urban fabric is composed of many contrasting areas, ranging from middle class residential buildings to low-rise labor housing.

The inhabitants change the leftover spaces to adapt their needs, and the use of these spaces varies according to each area. For example, a wide space is inevitably turned into a parking lot, while the same space in the labor housing area is turned into a volleyball field using locally available materials.

The intervention on site aimed at representing how usually inhabitants are the real designers of their public spaces. In other words, how users make subtle changes in the nature of their surroundings to create public spaces within the limits of what the site provides. Students organized an event, the projection of a Bollywood movie on a blank wall of a building in order to analyze inhabitant's reactions and the adaptive nature of the space – an empty sand lot turned into a public /social gathering space - used for the event. For the organization of the event students faced many challenges. The first idea was to project the final match of the cricket world championship. At that time the match India vs. Pakistan could attract thousands of viewers causing potential security issues. The police department did not allowed nor authorized the event therefore the idea was dismissed.



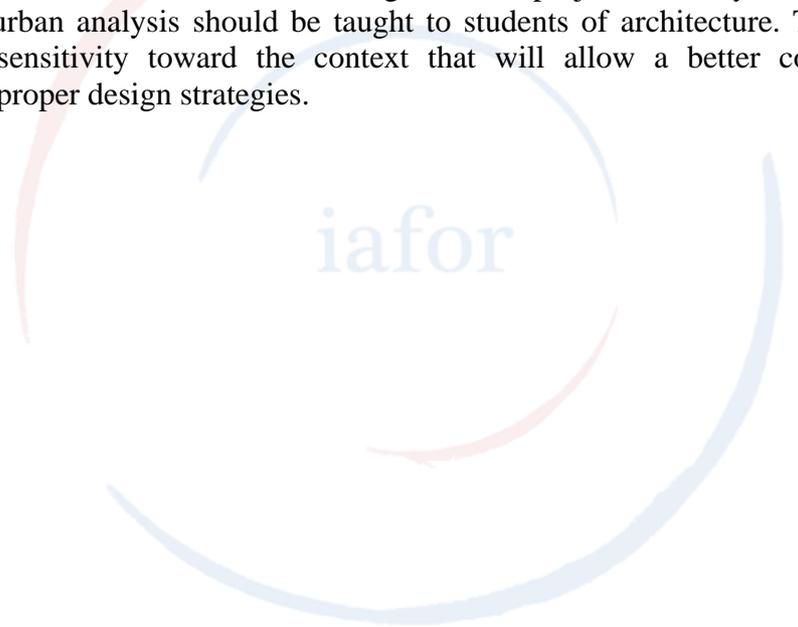
Figure 3: Adaptive spaces

Therefore, a more “subtle” Bollywood movie was chosen although with such strong competitor (the cricket match) the audience was way more limited. Students spent lots of time on site organizing logistics and making agreement with the representatives of the community whom were enthusiastic about the initiative and, overall, very helpful. A generator and a projector was rented and installed in the empty lot. The movie started at dusk. As result, one anonymous, undefined and un-designed left over urban space became, for few hours, the pole of attraction of the whole neighborhood. The movie was watched from the “open theater” and from the surrounding houses. The audience was so enthusiastic about the whole event that at the end of the first movie they asked for one more projection which students were happy to provide.

Conclusion

Students' experience during the seminar informed directly and indirectly their final project. For instance, one student designed as main public space, of her project, an open theater due to the success of the event organized during the analysis phase. Some other students incorporated characters of existing alleys between buildings and re-design them in order to define the circulation of their own projects. Many other traces of the Space[Less]City seminar experience could be found in final students' projects.

I believe that designers and students of architecture should include in their urban analysis an experiential component. Traditional study of cartography, even if it includes environmental characters and social settings, is not enough to fully understand a complex scenario such as any neighborhood of any contemporary "global" cities. Especially if operating in different countries and in different cultures, designers cannot avoid to conduct a comprehensive and meticulous site visit and analysis in order to record personal impressions of the existing status quo. The collected information will be essential to ground the project in reality. Therefore, this method of urban analysis should be taught to students of architecture. They should develop a sensitivity toward the context that will allow a better command on elaborating proper design strategies.

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***Proposing an Innovative Library Management System for Afghanistan:
E-Ketabtoon***

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Abstract

At present, the higher-education libraries across Afghanistan are entirely paper and card-based. This paper proposes an innovative library management environment known as “*e-Ketabtoon*”. It aims to automate and replace the current card and paper system. The prominent features of e-Ketabtoon includes: (i) acquisitions (ordering, receiving, and invoicing materials); (ii) cataloging (classifying and indexing materials); (iii) circulation (lending materials to patrons and receiving them back); (iv) serials (tracking magazine and book holdings); and (v) a DBMS with a user interface in a browser. With this system in place, the university could benefit from instant library access; enhance the overall management of the library and learning resources across the school: streamline acquisitions, circulations and cataloguing workflows; and improve cost savings. The system will thus, encourage the use of libraries by students for learning; improve access to reading resources; and enable independent learning, resulting in improving the literacy levels in Afghanistan. Hopefully with all of the changes, e-Ketabtoon would make the library run much more efficiently and smoothly. With less time spent filling out paperwork, more time can be spent to assisting students and keeping the colossal amounts of media held in the library. The system will also be more efficient, dependable and user friendly to everyone.

Keywords: Relational Database; Information Communication Technology; Web server

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Introduction

The last quarter of the twentieth century has been devastating for Afghanistan. It is also one of the unfortunate countries that lack a viable, stable and uniform education sector. After the overthrow of the Taliban regime in the late 2001, Afghanistan appealed to the international donors for rebuilding the Afghan education sector. The response was encouraging and five universities emerged in various provinces.

In the same period Information Communication Technologies (ICTs) were introduced in Afghanistan to revitalize the education sector in this country. ICTs that include computers, mobiles, TV, social media, etc., have the potential to enhance students' technical know-how and skills. It also offers a wide variety of educational services and facilities without any limitations of time and space e.g., digital library management systems, distance learning, virtual learning environments, etc. Although, ICTs were widely welcomed in Afghanistan, yet it faces several implementational and resource related issues.

Currently, the existing libraries are insufficient to meet the knowledge demands of the Afghan students, academia and researchers. They are old-fashioned paper or card-based libraries lacking sufficient resources and efficiency. Similarly, there are other issues related to ordering materials, insertion, deletion, thefts and damages. Contrary to the traditional library management system, a digital web-based library management environment offers a more secure, highly efficient, and meticulous facility. Library Management System (LMS) is an integral component of e-learning paradigm. It is a project to manage resources in the library, used to track items owned, orders, and clientele who have rented the books or other materials.

This study proposes an innovative LMS called as "e-Ketabkhana" to automate and replace the traditional library management practices in Afghan universities. But nowadays Information and Communication Technology (ICT) has rapid development across the world. Although, the big problem is how to use or take outstanding benefits from this opportunity. Currently, ICTs have vital position in e-government, e-health, e-education, e-commerce etc. Information and Communication Technology (ICT) has potential to accelerate, enrich student knowledge related to their major to find good jobs in the future and serve to their society even to the world with fully honesty.

So, this paper will focused on education part of the society. The major method for fighting against social exclusion is education, so it means literary and media education at schools and universities have important role. The security situation is not better in Afghanistan than other countries in the world; e-education will reduced the problem of education system in Afghanistan. So, still there is paper-base or card-base system at universities' and libraries that create more problems such as acquisitions, cataloging, circulation and serial numbers of materials.

This study will propose a system through ICTs to reduce the mentioned problems knows Library Management system (LMS). Library Management System (LMS) is the precondition of e-education. Libraries are the repositories of the wisdom of the ages to keep in form of digital information for using at the present and for future or next generation to access information comfortable regardless the time or location (R.Kavitha, 2009). This system will change the paper-base system to digital system.

E-ketabtoon

Distribution of traditional knowledge resources have failed in developing countries. Therefore digital libraries are very good alternative for regions and societies where there are more difficulties to access information. Many researchers are willing to use digital system to access recently digital contents and publication across the world. As the study noticed before proposing an innovative library management system knows *e-Ketabtoon* to change the paper form to electronic or digital system. Ketabtoon is the Pashto term for library in Afghanistan.

This system will provide outstanding facilities such as (i) acquisitions (ordering, receiving, and invoicing materials); (ii) cataloging (classifying and indexing materials for searching); (iii) circulation (lending materials to patrons and receiving them back according to deadline or timetable); (iv) serials (tracking magazine and book holdings); and (v) a Database Management System (DBMS) for storing a huge number of materials with friendly user interface in a browser. The most innovative features are text recognition and e-contents. Text recognition means changing materials from Pashto or Dari languages to English language.

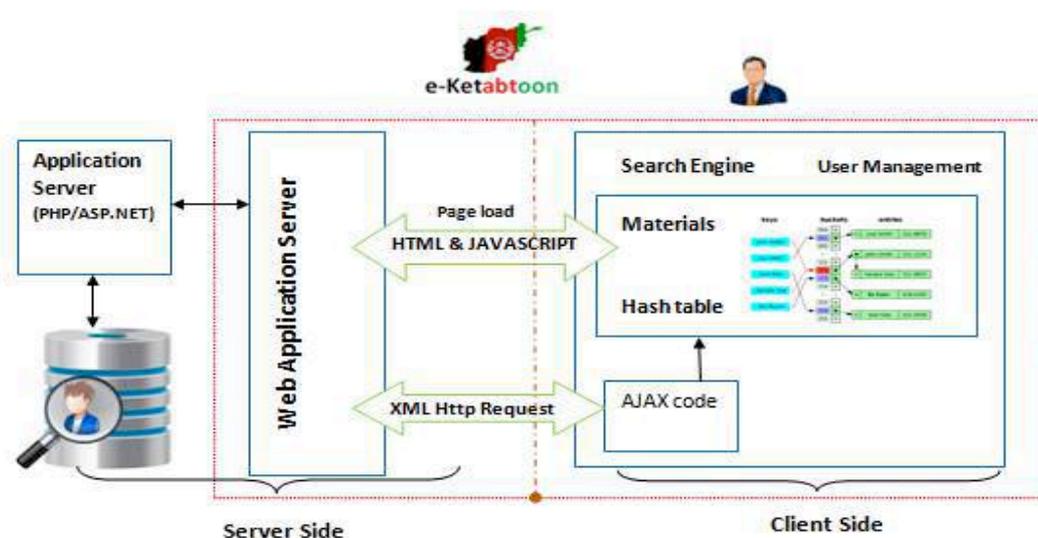
E-contents means providing an environment for all lecturers across the countries to upload their materials in the library and users will access through library. With this system in place, the university could benefit from instant library access; enhance the overall management of the library and learning resources across the university; streamline acquisitions, circulations and cataloguing workflows; and improve cost and time savings. So, data mining is very important part of digital library, and data mining is divided by three categories, structure, content and user log mining but the important one is data mining (Zhang, 2011).

Digital library has received extensive consideration in the recent years to access digital information regardless time and place. The system will encourage the use of libraries by students, teachers, researchers and staff for learning; improve access to reading resources; and enable independent learning even disable people, resulting in improving the literacy levels in Afghanistan. In order to come up with ideas, recommendation, tools, techniques, concepts and methodologies covering the need of today about the processes of developing web-based application (Peter H. Carstensen, 2001). The significance of this project includes: (i) collection and dissemination of information; (ii) satisfaction of user's needs; (iii) educational reading with academic and technical collection; (iv) provision of cultural and recreational study; (v) provision for syllabi study etc (R.Kavitha, 2009)

Education will be accelerated by using digital library from remote spaces just by using ICTs tools. Furthermore, digital library can assist human development and dissemination of logical materials. The focused point will be how to use new technology and discover problems with related solutions in terms of e-learning, especially related to digital library in Afghanistan because of library is an essential element of society.

Architecture

E-Ketabtoon system is a web-based system using client-server architecture. The architecture (see Figure 1) is combined of two main sides: (i) client side; (ii) server side. The client side has general interface to access three types of information user management, digital library and physical library records in database. The mentioned interface is using different technologies to provide services for clientele such as accessing, searching etc (Naikm, 2012). Client side includes of user management and search option. Clientele can manage his/her personal information and search the data inside the database through interface.



Development Strategy

This paper uses learner center design strategy for development of the software. The important part for software design is development strategy. Development is a process which follows different steps to achieve the goal. In the past couple of years many model have been created. However, the agile method is based on iterative and incremental process (see Figure 2) where the requirements and solutions are involved (Software Design Consultant). According to software engineering, agile method is flexible to requirements; to reduce the risks which have affect on quality of software. This approach requires involving customer in the whole project. In addition, agile method or learner center design approach offers an outstanding framework for users' satisfaction. Verily, users' satisfaction is the quality of the system. Furthermore, collaboration and teamwork is the main point of the noted method. The involvement of user in project has effect on the result of the system. The aim of the noticed method is to involve the learner in the design process and keep learner at the center of the design process.

Moreover, the optimal advantages of agile methodology or learner center design strategy are:

- a) Continuous feedback from user
- b) Keep user at the center of the design process
- c) More transparency
- d) Better visibility etc (Software Design Consultant)

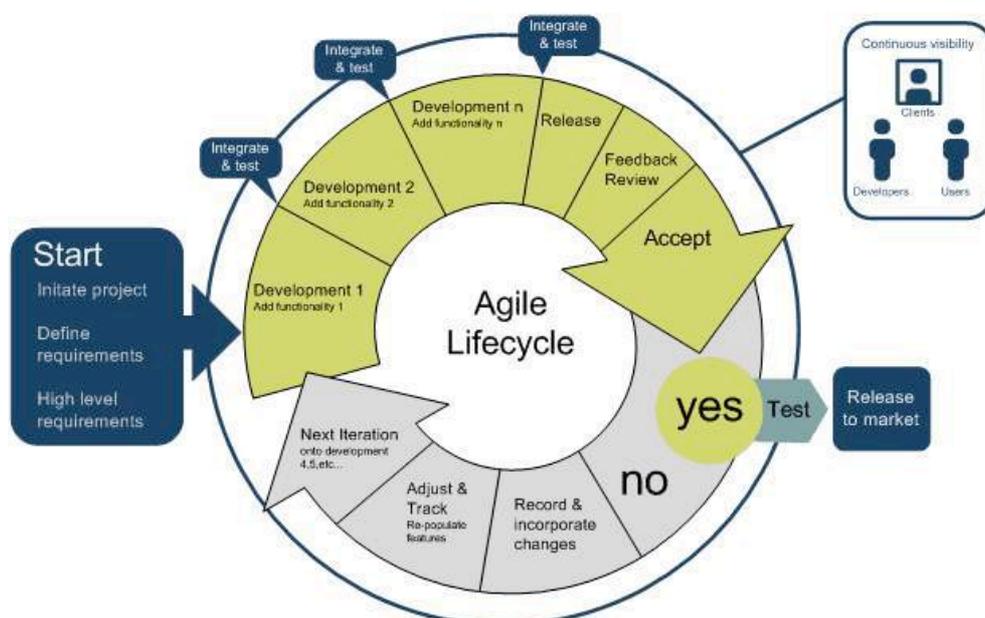


Figure2. Development strategy (Software Design Consultant)

Evaluation Strategy

Evaluation is a research activity which is combined of theoretical and practical impacts and the objective of evaluation process is to address user's and received valuable comments and feedback from users for improvement of system (Marchionini, 2000). This system will be evaluated by system and user, but according to Iterative Design Cycle (IDC) the system should be evaluated as formative and summative. Formative evaluation is done before starting or in between the actual project and it is a primarily building process for accumulate the whole system. On the other hand, summative evaluation is also important; it means how to measure the outcome of the system. In the last noticed evaluation the users' requirements will be addressed. The evaluation phase will evaluate different parts of system such as:

- Structure function should be evaluated
- Internal operation (cataloguing, classification, recording, generating report, labeling etc)
- Service to users
- Update technology for new service demand on users etc

With different criteria such as success, efficiency (quantitative and qualitative will be observed), effectiveness (focus on goals), cost etc. (Wilson), evaluation strategy will be different system to system. However, the overall aim is to evaluate the system function's (Marchioni, 2000) to address user satisfaction. In addition, in the *e-Ketabtoon* evaluation is not one time or one step process. We will do evaluation time to time to improve the design of system and we will go through lab testing then expert walk-through, if every things goes well we will be entry to the real field test which will be carry out in Afghanistan with real users.

Possible Limitation

Despite the importance of this study, there are limitations that will be reduced in the future such as. (i) lack of professional experts of new technology. Users of library management system do not have the equal knowledge of using ICTs. So, professional experts are the main part of the system . It will take time and cost with training; (ii) weak elctricity infrastructure, we have to provide a superior fundamental electricity infrastructure for e-Ketabtoon across the country; (iii) no national ICT policy to provide a framework for multilingual materials ; (iv) e-Ketabtoon is concern about copyright of materials; (v) preservation of materials for next generation through different languages; (vi) internet connection is also a problem inside developing countries. Interent is expensive and very slow. However, this study is trying to provide a possible soultion to reduce the mentioned problems.

Future Work

At present, there is a great desire for having updatable systems and latest technology among the developing countries. Due to future work, this paper is trying to focus on qualitative and quantitative point of views to overcome the limitation of the system which are include of copyright, skill of usage etc. This system will be used in future to support the users by adding virtual learning environment. Due to improvement of new technology in the society, the mentioned system will not provide all the services to

users, however according to future plan; the system will facilitated the services to address users' requirements.

In addition, text-recognition and e-contents are the future plan for library management system. Text-recognition means to translate English materials to Pashto and Dari languages and reverse of it because most of the people do not know about English materials. On the other hand, e-content is other plan for future, to provide a competitive environment for lecturers and students across the country to upload their materials in the noticed system and improve their knowledge. This kind of opportunities will provide competitive atmosphere. Furthermore, this study will highlight the current situation of libraries in Afghanistan. E-Ketabtoon will preserve the remaining valuable knowledge and research works to the next generation. Indeed, the authors hope that e-Ketabtoon will promote the digital book culture in Afghanistan and improve overall library management structure.

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Conclusion

To sum up, paper-based library management system has more problems in Afghanistan. Currently, the libraries are inefficient, very slow in service delivering, no damage control, no preservation for next generation and lack of useful resources. This study has proposed a digital library management system known as *e-Ketabtoon* to reduce the current problems of library and to improve the educational system across the country. This system will improve the overall management system structure of library at universities. Furthermore, users will be able to access useful materials during class to improve their knowledge and skills via rural area connectivity and changing learning methodology across the country.

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***Salvaging Nigeria Tertiary Education through Public-Private Partnerships:
Issues and Constraints***

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Abstract

Education world wide is an instrument for national development. Funding remains a critical factor for quality education and poor funding has remained the lot of tertiary education in Nigeria. Tertiary education in Nigeria is offered at post secondary levels namely: the universities, polytechnics and colleges of education. Enormous fund is needed for the provision of infrastructures, settlement of overhead and recurrent expenditures, equipping of libraries, and purchase of consumables, staff development and training among others. With over 330 public tertiary institutions and other equally important areas like health and agriculture competing for the dwindling government revenues, it is apparent that government alone cannot adequately fund tertiary education. This paper takes a look at tertiary education in Nigeria, the funding problem, past programs and reforms aimed at ameliorating funding problem and the emergence of public-private partnerships (PPPs) as an alternative source. Issues and constraints to PPPs were equally discussed. Finally, some suggestions on how to take full advantage of PPPs in salvaging tertiary education were made.

Keywords: Salvaging, Tertiary Education, Public-Private Partnerships, Funding and Challenges.

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Introduction

Education has been defined as all efforts, conscious and direct, incidental and indirect, made by a given society to accomplish certain objectives that are considered desirable in terms of the individual's own needs as well as the needs of the society where that education is based (Fafunwa, cited in Kpolovie and Obilor, 2013). The relationship between education and development is well established such that education is a key index of development. Education improves productivity, empowerment and health, but reduces negative features of life, such as child labour, prostitution, crime and other vices (Kpolovie and Obilor, 2013).

The difference between developed and developing nations is in the quality of their education. One of the cardinal points of the Millennium Development Goals (MDGs) is access to quality and better education to all children of school age (Wikipedia, 2009). Nigeria's quest for becoming one of the twenty leading economies in the world depends largely on the quality of its education. It was in this regard that Oweh (2014) stresses that irrespective of the natural endowment a nation might have, without the requisite educational capacity, the skills necessary to harness them would be lacking and therefore, the structure or system of such a society is bound to have defects. The Federal Government realizes the importance of quality education to economic development when it emphasizes that education in Nigeria is no more a private enterprise, but a huge venture that has witnessed government's complete intervention and active participation (National Policy on Education, 2014). It also goes further to adopt education as an instrument par excellence for national development.

Although quality education is a combination of many factors, adequate funding remains very critical. Kpolovie and Obilor (2013) stress that the quality of education depends on a nation's funding of the sub-sector. Investment in education leads to the formation of human capital that makes a significant contribution to economic growth. Education is supposed to attract considerable portion of public expenditure because of its position as a social service with direct economic significance with generally acclaimed positive spillover effects (Uche, Ihugba and Nwosu, 2013). For education to be seen as successful, it requires huge investment either in terms of policies and implementation, infrastructure, human capacity development and of course funds, including the application of all these to get the desired goal (Oweh, 2014). To underscore the importance of funding to education, some international organizations have advocated some benchmarks for the funding of the sub-sector as follows: Dakar Framework of Action, 20% of national budget or 5% of GDP; Education for All, 20% of national budget; World Education Forum, 7% of GDP within 5 years and 9% within 10 years; UNESCO, 26% (Wale, 2014 and UNESCO 2000). Also United Nations Development Programme (UNDP) has recommended 70% of education budget to Capital Expenditure and 30% to Recurrent Expenditure (Wale, 2014).

Education is a shared responsibility of the Nigerian federal, state and local governments. Nigeria is the most populous black nation with almost 168 million people, 30 million of which are students (United State Embassy in Nigeria, 2012). The Nigerian higher education sector is perhaps the largest in sub-Sahara Africa both in the number of educational institutions and the population of students (Chikwem, 2008). With more than 330 public and private tertiary institutions, including Colleges

of Agriculture and Monotechnics (NUC, 2015; NBTE, 2015; NCCE, 2015) coupled with the dwindling oil revenue, adequate funding of tertiary education poses a very big challenge. The problem of education funding, especially tertiary education in Nigeria has been in the front burner for decades now. This sub-sector has witnessed serious funding crises that have resulted in several strike actions by various academic and non academic staff unions. Many writers (Chikwem, 2008; Adeyemi, 2011; Ubogu, 2011; Akpanuko, 2012; Kpolovie and Obilor, 2013 and Wale, 2014) have decried the under funding of tertiary education in Nigeria. Statistics presented by Wale (2014) show that Nigerian Government budgeted an average of less than 9% to education between 1999 and 2014.

Aside direct budgetary allocation to education, the Nigerian government, had introduced various programmes and reforms geared towards improving the funding of education generally and tertiary education in particular. Such programmes and reforms include, but not limited to Education Tax Fund (1993) now known as Tertiary Education Trust Fund (TETFund), Public Sector Enterprises Privatization and Commercialization (1998) and Public-Private Partnership (PPP) established under Bureau for Public Sector Reforms (2006). Of all these programmes and reforms, PPP remains largely unexplored. This paper discusses the potentials and constraints of using PPP to ameliorate the problem of funding tertiary education in Nigeria.

Nigeria Tertiary Education

The tertiary education in Nigeria is comprised of universities, polytechnics (including institutions of technology, colleges of agriculture and monotechnics) and colleges of education. These institutions are further categorized into federal, state and private. Admission into these institutions is through Unified Tertiary Matriculation Examination (UTME) conducted by Joint Admission and Matriculation Board (JAMB). University education is the highest sort for followed by polytechnics and then colleges of education.

Universities are charged with the responsibilities of producing high level manpower. They offer programmes at undergraduate and postgraduate levels. At the undergraduate level, they award Bachelor's degree while at the postgraduate level, they award Master's and Doctorate degrees. The management of each university is headed by a Vice Chancellor. The National Universities Commission (NUC) is the supervisory agency for the universities. There are 40 federal, 39 state and 50 private universities (NUC, 2015).

The polytechnics were established to train technical, middle-level manpower. They offer two levels of programmes of two years each – National Diploma (ND) and Higher National Diploma (HND). There still exists a dichotomy between degree and HND holders which the government is still battling to resolve. The management of each polytechnic is headed by a Rector. The regulatory agency for the polytechnics is the National Board for Technical Education (NBTE). The number of federal, state and private polytechnics is 21, 38, and 25 respectively. There are also 17 and 19 federal and state colleges of agriculture respectively as well as 23 federal, 2 state and 2 private monotechnics (NBTE, 2015).

The colleges of education were established principally to produce manpower to teach at the basic education level. They offer 3-year programmes leading to the award of Nigeria Certificate in Education (NCE). Many colleges of education offer degree programmes in affiliation to the universities. An attempt by the federal government, under Nigeria Education Sector Reform Bill Draft 2007 to convert federal polytechnics and colleges of education into campuses of contiguous universities failed. The administrative head of each college of education is called a Provost. Programmes of colleges of education are supervised and accredited by the National Commission for Colleges of Education. There are 21 federal, 38 state and 4 private colleges of education (NCCE, 2015).

Tertiary Education Funding: Facts and Commentaries

The importance of adequate funding of tertiary education cannot be over-emphasized. Funds are needed to take care of recurrent and capital expenditures such as workers salaries, water and energy bills, maintenance and fueling of vehicles, provision and maintenance of lecture halls, theatres, hostel facilities, libraries and research material, laboratories and so on.

The period between 1953 and 1980 witnessed a lot of development in the financing of education in Nigeria. It was a period when the federal and regional governments had constitutional roles for educational development (Adeyemi, 2011). Before this period, the funding of education was mainly in the hands of Christian missionaries and Voluntary agencies. By 1981, government had taken over the funding of schools. The financial involvement of government in education had become remarkably visible leading to further educational activities and expansion. Adeyemi (2011) reports that during this period, the government was solely responsible for funding education in Nigeria, although the amount spent on education might be small perhaps due to debt servicing.

The federal government increased its commitment towards funding of education at all levels in the country, emphasizing that education in Nigeria was no more a private enterprise, but a huge venture that must witness government's intervention and active participation (Marcellus, 2009 cited in Kpolovie and Obilor, 2013). The federal government is responsible for funding federal government owned public tertiary institutions while the state government and proprietors take care of state and private institutions respectively. However, the federal government provides financial assistance to state and private institutions especially in capital projects. The emphasis of this paper is on the funding of federal government owned public tertiary institutions.

Tertiary institutions in Nigeria are funded through budgetary allocations. Akpanuko (2012) reports that tertiary institutions derive 85% of their funds from the government, 10% from internally generated revenue and 5% from other sources such as endowment, fees/levies, services, consultancy, and renting facilities. The government funds come through the annual budgetary allocations excluding interventions from other government agencies such as TETFund. Government's budget to the education sector is usually shared among the following agencies/parastatals: Main Ministry of Education, universities, polytechnics, colleges

of education, government colleges, technical schools and statutory transfer to Universal Basic Education Commission (UBEC).

Table 1: Total Budgetary Allocation to Education from 1999 – 2014 (in Naira)

Year	Total Budget	Education Budget	% of Allocation
1999	60,549,835,647	2,700,000,000	4.46
2000	470,009,971,781	40,940,663,330	8.71
2001	894,214,805,186	63,783,776,900	7.13
2002	1,064,801,253,520	73,435,499,300	6.90
2003	976,254,543,375	75,707,827,520	7.75
2004	1,790,848,344,588	93,767,886,839	5.24
2005	1,799,938,243,138	147,835,827,799	8.21
2006	1,876,302,363,351	195,693,672,666	10.43
2007	2,266,394,423,477	221,071,774,929	9.75
2008	2,492,076,718,937	250,144,818,579	10.04
2009	2,870,510,042,679	252,204,813,495	8.79
2010	4,608,616,278,213	339,634,791,000	7.37
2011	4,226,191,559,259	393,810,171,775	9.32
2012	4,749,100,821,170	468,385,490,528	9.86
2013	4,987,220,425,601	509,039,713,761	10.21
2014	4,642,960,000,000	493,458,130,268	10.63
Total	39,775,989,629,922	3,621,614,558,688	8.43

Sources: Wale (2013). Budgetary Allocation to Education Sector.

Wale (2014). Empirical Analysis of 2014 Education Budget.

The total budget from 1999 to 2014 was ₦39.775 trillion with education taking ₦3.621 trillion. On the average, this is 8.43% of the total budget. The lowest was in 1999(4.46%) while the highest was in 2014 (10.63%). Allocation to education ranked highest in 12 of the 16 years (2000, 2003 – 2007, 2009 – 2014). While it ranked 2nd in 2001 and 2008, 3rd in 2002 and 6th in 1999.

It should be noted that 13 new federal universities, 4 polytechnics and 3 colleges of education were established within the period of 2009 – 2014. There are times when wide gaps exist between the amount being budgeted for and the actual amount released (Oseni, 2012 and Wale, 2014).

In the budgetary provision for education from 2006 to 2010, all the appropriations for Recurrent Expenditure were fully released but this was not the case for Capital Expenditure (Oseni, 2012). These budgets are shared between current expenditures (salaries, pensions and overheads) and capital expenditures (infrastructure, educational services and healthcare facilities).

Table 2: Recurrent and Capital Allocation to Education from 1999 – 2014 (in Naira)

Year	Recurrent	%	Capital	%	Total	Total Budget
1999	2,700,000,000	100	-	0.00	2,700,000,000	60,549,835,647
2000	29,514,932,709	72.09	11,425,730,621	27.91	40,940,663,330	470,009,971,781
2001	38,983,776,900	61.12	24,800,000,000	38.88	63,783,776,900	894,214,805,186
2002	51,335,499,300	69.90	22,100,000,000	30.10	73,435,499,300	1,064,801,253,520
2003	61,726,621,039	81.53	13,981,206,481	18.47	75,707,827,520	976,254,543,375
2004	72,217,886,839	77.02	21,550,000,000	22.98	93,767,886,839	1,790,848,344,588
2005	92,594,737,799	62.63	27,440,790,000	18.56	147,835,827,799	1,799,938,243,138
2006	129,421,908,835	66.13	35,791,763,831	18.29	195,693,672,666	1,876,302,363,351
2007	137,478,261,081	62.18	48,293,513,848	21.85	221,071,774,929	2,266,394,423,477
2008	162,694,071,909	65.03	47,750,746,670	19.09	250,144,818,579	2,492,076,718,937
2009	183,014,340,686	72.57	33,625,096,425	13.33	252,204,813,495	2,870,510,042,679
2010	198,084,948,657	58.52	97,208,440,839	28.62	339,634,791,000	4,608,616,278,213
2011	304,392,631,774	72.29	35,088,896,911	8.91	393,810,171,775	4,226,191,559,259
2012	345,091,448,178	73.68	55,056,589,805	11.75	468,385,490,528	4,749,100,821,170
2013	360,822,928,272	70.88	71,937,785,489	14.13	509,039,713,761	4,987,220,425,601
2014	373,452,095,037	75.68	49,536,035,231	23.32	493,458,130,268	4,642,960,000,000
Average	-	71.33	-	19.79	-	-

Source:Wale (2014). Empirical Analysis of 2014 Education Budget

The difference between the amount allocated to recurrent and capital expenditures and the total education budget was the amount allocated to the UBEC. The entire education budget in 1999 was spent on recurrent expenditure. In 16 years, the highest that was spent on capital expenditure was 38.88% in 2001. An average of 19.79% was spent on capital projects during the period under review.

This was against the recommended 70% (Wale, 2014). There is a huge gap between amount for capital and recurrent expenditures. Large percentage of education budget is voted for recurrent expenditure to the detriment of capital expenditure for infrastructure in the sector. This distribution poses challenges of slow pace in infrastructural development in the agencies and institutions (Chukwumerije, cited in Oseni, 2012).

A comparison of federal government budgetary allocation to education with the recommended global benchmark for developing countries and other countries' budgetary allocation (Wale, 2014; Kpolovie and Obilor, 2013; and UNESCO, 2000) shows that education, especially tertiary education is under funded in Nigeria. This presents a contrast to what obtains in many industrialized nations where some individual universities' budget exceed the entire national budgets for higher education in many African countries (Tererra and Altbabach, 2004)

Table 3: Annual Budgetary Allocations of 20 World Bank Sampled Countries to Education

S/No	Country	% Budget Allocation Education	Position
1	Ghana	31.0	1 st
2	Cote d'Ivoire	30.0	2 nd
3	Uganda	27.0	3 rd
4	Morocco	26.4	4 th
5	South Africa	25.8	5 th
6	Swazilan	24.6	6 th
7	Mexico	24.3	7 th
8	Kenya	23.0	8 th
9	United Arab Emirate	22.5	9 th
10	Boswana	19.0	10 th
11	Iran	17.7	11 th
12	USA	17.1	12 th
13	Tunisia	17.0	13 th
14	Lesotho	17.0	14 th
15	Burkina Faso	16.8	15 th
16	Norway	16.2	6 th
17	Colombia	15.6	17 th
18	Nicaragua	15.0	18 th
19	India	12.7	19 th
20	Nigeria	8.4	20 th

Source: World Bank (2012). World Bank selected 20 countries annual budgetary allocation to education.

Nigeria with 8.4% occupies the last position while Ghana and Cote d'Ivoire with 31.0% occupy the 1st and 2nd position respectively. A well developed nation like USA budgets as much as 17.0% to education. The poor funding of education has led to serious infrastructural deficit in Nigerian tertiary institutions. The institutions are bedeviled by myriad of problems, which keep worsening by the day. These include poor funding; shortage of quality staff; dearth of infrastructure; inadequate classrooms and offices; inadequate laboratories for teaching and research; shortage of books and journal; inconsistent and ill-conceived policies; low staff-student ratios; fraud and self-deception with regard to accreditation; failure to send staff regularly on short courses to improve and enhance their competencies; and the fact that government often reneges on the mutual agreements between it and the staff unions (Ayooso, 2011 and Oseni, 2012).

Statistics recently released by the UN Human Development Index (HDI) ranks Nigeria 26th out of 54 African countries and 13th out of the 16 West African countries on education (Oweh, 2014). This sorry state of affairs has occasioned incessant strike actions by various staff unions notably the Academic Staff Union of Universities (ASUU), Polytechnic Academic Staff Union (PASU) and Colleges of Education Academic Staff Union (COEASU). In 2013 ASUU was on strike for about 6 months. The PASU strike that started in 2013 lasted for almost an academic session while

COEASU was on strike for about 7 months in 2014. All these disruptions on academic activities have serious negative impact on the quality of education.

To stem this ugly tide, the Committee of Vice Chancellors (2013) recommended policy interventions to address the challenges of universities and other tertiary institutions in the country. The government on its part is doing everything possible within the limit of its financial resources to improve the funding of tertiary education. To this end, and in response to the findings of the Needs Assessment Committee, the Federal Government has decided to inject ₦1.3 trillion into public universities in the next 5 years starting from 2014. The polytechnics and colleges of education are still awaiting government's response to the findings of the Needs Assessment Committees set up for polytechnics and colleges of education. In the interim, the government has approved ₦220 billion to be disbursed to tertiary institutions as follows: federal universities, ₦910 million; polytechnics, ₦650 million and colleges of education, ₦550 million.

Tertiary Education Trust Fund (TETFund)

The Education Tax Fund (ETF) as it was originally called was an alternative source of funding education being explored by the government. It was established under the Education Tax Act 1993. The Act stipulates that every company registered in Nigeria with more than 100 employees contributes 2% of their yearly pre-tax profit to the fund through Federal Inland Revenue Service (FIRS). Other sources of its fund include:

- (a) 2% bloc grant received from federal government from its Consolidated Revenue Fund established under section 167 of the 1999 constitution which was before the commencement of this Act received by the UBEC under repealed Compulsory Free Universal Basic Education Act 2004
- (b) any money or contribution in form of federal government guaranteed credits
- (c) any money received from local and international donors, gifts and endowment
- (d) monies received as profit and interest from investments from the Fund made by the Board of Trustees.

The fund was disbursed according to the ratio of 50:40:10 to tertiary, primary and secondary education respectively. The share of tertiary education is further allocated to the universities, polytechnics and colleges of education in the ratio of 2:1:1 respectively (Ajayi and Alani, 1996 cited in Oseni, 2012). In 2009 ETF was transformed to TETFund whose sole focus is on funding capital projects, library, research, and capacity building in tertiary institutions (Naiya, 2014). The Federal Government allocated ₦336 billion to federal tertiary institutions in 2013 through TETFund. The institutions funded by TETFund in 2013 increased from 16 to 179 just as allocations to universities, polytechnics and colleges of education equally increased (Wike, 2014).

The breakdown shows that TETFund grant to each university in 2011 was ₦395m which was increased to ₦646 million in 2013, with total grant to all public universities increasing from ₦22.9 billion in 2011 to ₦45.2 billion in 2013, an increase of 97.38%. Support for each polytechnic increased from ₦240 million in 2011 to ₦443 million in 2013, bringing an increase from ₦12 billion for all

polytechnics in 2011 to ₦23 billion in 2013, an increase of 97.67%. Similarly, the support for the colleges of education increased from ₦190 million each in 2011 to ₦390 million in 2013, with total grants to the colleges also rising from ₦10.2 billion in 2011 to ₦21.4 billion in 2013, an increase of 109.80% (Wike, 2014).

There is also high impact intervention on infrastructure development with monies received by all institutions running to several billions of naira and Research Fund for which over ₦260 million had recently been released to 13 beneficiaries. TETFund has also sponsored many academic staff of tertiary institutions to various training and development programmes such as higher degrees, conferences and workshops both locally and internationally.

However, the tertiary institutions are having the challenge of accessing this fund. Babayo (2014) disclosed that ₦300 billion meant for tertiary institutions was lying idle in the Central Bank of Nigeria (CBN). Similarly, Wike (2014) expressed dismay that many state and federal government-owned tertiary institutions did not access the fund for their development.

Privatization and Commercialization of Education

The Public Sector Enterprises Privatization and Commercialization Act of 1999 gave the legal framework for private sector participation in tertiary education and has occasioned the increase in school fees in order to boost internally generated revenue of the institutions.

Chikwem (2008) recounts that the private universities have evolved during two historical periods: the first period, during the Nigeria's second democratic experience (1979/1983). During this period, private universities emerged without any defined educational planning for their development and were later abolished in 1984. The second period, from 1999 to-date, occurred as part of planned development project. Since 1999, 50 private universities, 25 private polytechnics and 4 private colleges of education have been established. Beyond mere increase in private funding, privatization appears to be an answer to increasing demand for higher education and may therefore mean that parents pay the cost of schooling rather than the government (Chikwem, 2008). Chikwem contends that the issue is not so much of money but rather the freedom of choice, flexibility, regulation, quality and accountability. According to him, in developed countries, privately managed and regulated schools are generally supposed to be more effective, efficient and produce better results than schools managed by the government.

Under the privatization and commercialization policy, the government withdrew some of its services to workers, sold out furniture in government quarters and reviewed rent in government houses based on prevailing commercial rates. All these were geared towards reducing the cost of running the institutions and mobilizing more funds for the core academic activities.

Public-Private Partnership (PPP) in Education

A public-private partnership is a legally binding contract between government and business for the provision of assets and the delivery of services that allocates responsibilities and business risks among the various partners (Wali-Uwais & Co, 2006-2014). Ifediora (2013) conceptualizes PPP as a model of public procurement based on long term relationships between government or other public bodies and the private sector for the delivery of services. In a similar account, Uzodinma (2013) reiterates that PPP relates to perceptions and practices affecting public-private sector relationships in ensuring national/global health, development and wellbeing, and the conceptual aspects of such relationships, including the role of the key players to make these partnerships successful or otherwise. All these concepts point to the fact that PPP involves a contract between public-sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project.

Globally, the shift towards PPP has been necessitated by increasing dilapidation of public infrastructure, fiscal constraints as government seeks alternative sources of investment funding, need to eliminate bureaucratic inefficiencies in government projects, search for a viable alternative in the face of rising public debt and the rising demand for public services in the face of increasing population and strong economic growth (Ikpefan, 2013). Most countries have adopted the PPP policy about two or three decades ago as a way of fixing their infrastructure gap and at the same time, delivering good welfare services for their citizens.

Aside from developed countries including the United Kingdom, France, Germany, and the USA, emerging economies such as India, United Arab Emirate, Qatar, Singapore and Malaysia have adopted the PPP not only to develop but also to grow their economies (Adepetun, 2008 cited in Ikpefan, 2013). He goes further to cite a World Bank report which reveals that since 1984, 86 industrialized and developing countries have privatized 547 infrastructures as well as a shift away from public sector financing.

In 2009, Abu Dhabi government-owned Mubadala Development Company secured a \$1 billion financing for the Zayed University project through a PPP. The project involved the construction of a new university campus for 6,000 students in Abu Dhabi (Ifediora, 2013). The governments of Qatar and the USA have contracted with private partners to manage public schools to cater for the differentiated demand for education, in some cases using a franchising model to take advantage of good practices and economies of scale. Also in Denmark, New Zealand, Norway and the United Kingdom, more than 20% of public expenditure is transferred to private organizations (World Bank, 2009)

Many years of underinvestment and poor maintenance have left Nigeria with a significant infrastructure deficit which is holding back the country's development and economic growth. Nigeria needs to make massive investments beyond the means available to government in order to close its yawning infrastructure gap. Sanusi (2011) cited in Ifediora (2013) reports that Nigeria needs to invest over \$100 billion in the next 10 years in just four infrastructure areas namely power (\$18 – 20 billion), rail tracks (\$8 – 17 billion), roads (\$14 billion), and oil and gas (\$60 billion). Ifediora

(2013) estimates that between \$15 – 17 billion would be required over the next 10 years on the education infrastructure alone, with 65% of that estimate dedicated exclusively to the development of university infrastructure. Given the huge amount and expertise needed to address the infrastructure problem in Nigeria in general and the tertiary education sector in particular, the federal government believes that the private sector can play an important role in providing some of these new investments through PPP.

The National Policy on PPP (N4P) was formulated to give the modus operandi of PPP in Nigeria. The Policy covers key areas like legal framework, scope and application, parties/stakeholders and their roles, characteristics of PPP, principles of PPP, the PPP process, project funding among others. Under the legal framework, the Infrastructure Concession Regulatory Commission (ICRC) Act was established in 2005. The ICRC board is charged with the mandate to develop and issue guidelines on PPP policies, processes and procedures (including those for concessions), and to act as a national centre of expertise on PPP. It will work closely with relevant Ministries, Departments and Agencies (MDAs) to identify PPP projects and will act as the interface with the private sector to promote communication on national policies and programmes.

The PPP scope covers power generation, roads and bridges, ports, airports, railways, gas and petroleum, water supply, transport system, housing, healthcare facilities and education facilities among others. In education, and the tertiary institutions in particular, PPP arrangement can come in various areas such as construction (from building classroom blocks, lecture theatres, student hostels, and staff quarters to designing whole new campuses), health, transport, environmental sanitation, security and so on. The huge infrastructure deficit in tertiary institutions in Nigeria can best be addressed through PPP. Student hostels are inadequate and poorly maintained. Government placed embargo on construction of staff quarters and many of the institutions do not have staff quarters. These are some of the areas PPP arrangement can be very useful.

The PPP has the following options: Joint ownership, Contracted forms and Private financing (Bureau of Public Service Reforms (BPSR), 2006, p.27 cited in Ijaiya and Jekayinfa, 2009). Joint ownership is an arrangement whereby “a legal entity is formed for a new Greenfield investment or in order to pull out useful assets from a moribund or ‘misused’ indebted government business” (p.27). Contracted forms of PPP come in the form of “concessions, leases and contracted agreements, which are just simply procurement such as maintenance contracts where a particular aspect of a government’s operation is contracted out” (p.28). The contracted forms comprise “Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Rehabilitate-Operate-Transfer (ROT), and Build-Own-Operate (BOO)” (p.28).

The lease version is a case in which “a contract to assume control and use of a government asset for commercial purposed” is entered into with an appropriate organization (p.29). It is not privatization since an investor does not buy the whole business and all assets. A concession is “a right to serve a set of customers for a given service in a specific geographical area, or a set of customers already served by the network or set of products” (p.29). Private financing involves capital investment by a private company to help government in building infrastructure e.g. hostels, staff

quarters etc, while it pays the investor for the use of the facilities. PPP can also be used for staff training and development.

There are many variants of PPP models. Outsourcing has become another popular option. The Security, Cleaner and Messenger cadres have been outsourced to the private sector in the federal civil service in Nigeria. Many private investors have constructed hostels around institutions' campuses at agreed terms of operations with the institutions' authorities. The way in which the private sector engages and participates in education projects will reflect the strategy chosen by the relevant public sector body to best achieve its overall objectives (Ifediora, 2013). In all this, the principles of value for money and maintaining public interest must be kept in focus.

Issues and Constraints

Some of the issues and constraints that will prevent the government, private sector and other stakeholders from maximizing the potentials of PPP include:

1. How to provide investors in the partnership with acceptable return on their investment while keeping with the principles of value for money and public interest?
2. How to achieve transparency where corruption is endemic? How to ensure public and private sector integrity and accountability and establish appropriate procedures to deter, detect and penalize corruption?
3. Which forms of PPP can help expand the volume of resources available for education?
4. Which forms of PPP can help improve quality and relevance of education?
5. There is general lack of awareness and apathy on PPP.
6. There is a weak regulatory and enforcement power of ICRC.
7. There exist technical capacity gaps that will help institutions take full advantage of PPP.
8. Government policy inconsistency makes investors to be circumspect about PPP arrangement.
9. Government is underfunding education

Recommendations

1. The anti graft agencies like Independent Corrupt Practices and other Related Offences Commission (ICPC) and the Economic and Financial Crime Commission (EFCC) should be strengthened to check corruption in the country.
2. The ICRC should embark on aggressive enlightenment campaigns to make its existence and activities known to tertiary institutions' administrators and the general public
3. Each tertiary institution should establish PPP Technical Committee whose main duty would be to develop and advice management on PPP projects.
4. Every tertiary institution should have PPP Desk Officer whose duty would be to interface with the institution's PPP Technical Committee.

5. Any PP project should be well-researched and packaged by credible, experienced players in order to attract the needed finance.
6. Government should gradually increase funding of education with the target of meeting the minimum budget allocation of 26% by 2025.

Conclusion

The main focus of this paper is how to salvage tertiary institutions in Nigeria through PPP. Government alone cannot adequately fund tertiary education in the face of increasing students' enrolment, shortage of infrastructure and other educational services, competition from other sectors and more importantly dwindling resources occasioned by sharp drop in oil price and global economic meltdown. Budgetary allocations to the education sector have remained below 9% in the last 16 years and recurrent expenditures have taken a great chunk of the budget, leaving capital expenditures below 20%. Other measures taken in the past did little to bridge the funding gap. PPP holds the greatest prospect of addressing the funding challenges in Nigerian tertiary institutions. This can only be achieved if some of the issues raised and constraints identified are addressed.

The logo for the International Association for Education and Research (IAFOR) is centered on the page. It consists of the lowercase letters "iafor" in a light blue, sans-serif font. The text is surrounded by two large, overlapping circular arcs. The upper arc is light blue and the lower arc is light red, both rendered with a soft, glowing effect.

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***Relationship Between Multiple Intelligences and Performance in Technology
Livelihood Education: Basis for Differentiated Instruction***

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Introduction

Every person is a unique individual, they have different talent, understanding, way of appreciation, likes/dislikes and field of interest for a career as well. Encouraging the students to utilize their multiple intelligence will lead to a better one.

In every variables, there is always adaptation wherein people should be, like students who are in different level as to age and gender, they have different field of interest. Girls are much more patient rather than boys when it comes to household chores. We can determine their ability and skills when we see that they are well-motivated or they really like the field they have chosen.

On the other hand, sometime a person's interest is came from other people whom they admired most or influenced by them. If the child sees that more professional are in their community, he/she will like to be like them in the future especially if there is an assistance coming from the government to pursue their studies up to tertiary level. This research attempt to provide an analysis in multiple intelligences as basis for classroom instruction in Technology Livelihood Education in Malaya National High School, General Luna, Quezon.

Statement of the Problem

General Luna, Quezon is composed of twenty seven barangays. There are only two public high schools. We are aware that K-12 curriculum is focused on providing sufficient time for mastery of concepts and skills, develop lifelong learners, and prepare graduates for tertiary education, middle-level skills development, employment, and entrepreneurship.

The challenge is with TLE offering a vast area of specializations, how would Multiple Intelligence play its vital role as basis in classroom instruction in acquiring the requirement of the said curriculum?

Subproblems

1. To what extent do the respondent students manifest the following types of intelligences:

- 1.1 Visual-Spatial
- 1.2 Body-Kinesthetic
- 1.3 Musical
- 1.4 Interpersonal
- 1.5 Intrapersonal
- 1.6 Verbal-Linguistic
- 1.7 Logical-Mathematical
- 1.8 Naturalistic

2. What media should be used appropriate to the student's learning style?

- 2.1 Visual
- 2.2 Printed Words
- 2.3 Sound
- 2.4 Motion

2.5 Color

2.6 Realia

3. What is the impact of multiple intelligence as basis for differentiated instruction in T.L.E. based on the following student's ability?

3.1 Learning Characteristic

3.2 Reading Ability

3.3 Performance

4. To what extent do the intelligences of the student relate with their academic performance?

Purpose of Research

This research seeks to make an impact analysis on multiple intelligence as the basis for differentiated classroom instruction in TLE. It will also address the felt need of how TLE subject could be taught effectively exhausting all the possible means. This study seeks the effect of giving different instruction according to the ability of the students in the following objectives:

1. student's technological skills enhancement
2. learning potential improvements
3. having better linkage between school and community in a need for soliciting different learning devices and materials for the learner's academic progress

Literature Review

The following section consists of background information relating to multiple intelligence, including definitions and explanations of differentiated instruction in Technology in Livelihood Education domains as well as the learning styles in the Theory of Multiple Intelligence and the subject T.L.E. itself. This section will also establish abbreviations for common terms to be used throughout this thesis and sets the stage for the research that follows.

Theory of Multiple Intelligences Defined

The theory of multiple intelligences is a theory of intelligence that differentiates it into specific (primarily sensory) "modalities", rather than seeing intelligence as dominated by a single general ability.

Howard Gardner of Harvard has identified seven distinct intelligences. This theory has emerged from recent cognitive research and "documents the extent to which students possess different kinds of minds and therefore learn, remember, perform, and understand in different ways," according to Gardner (1991). According to this theory, "we are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, the use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Where individuals differ is in the strength of these intelligences - the so-called profile of intelligences - and in the ways in which such intelligences are invoked

and combined to carry out different tasks, solve diverse problems, and progress in various domains."

Gardner says that these differences "challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well." Gardner argues that "a contrasting set of assumptions is more likely to be educationally effective. Students learn in ways that are identifiably distinctive. The broad spectrum of students - and perhaps the society as a whole - would be better served if disciplines could be presented in a numbers of ways and learning could be assessed through a variety of means." The learning styles are as follows:

Visual-Spatial (Picture Smart)

Think in terms of physical space, as do architects and sailors. Very aware of their environments. They like to draw, do jigsaw puzzles, read maps, daydream. They can be taught through drawings, verbal and physical imagery. Tools include models, graphics, charts, photographs, drawings, 3-D modeling, video, videoconferencing, television, multimedia, texts with pictures/charts/graphs.

Bodily-Kinesthetic (Body Smart)

Use the body effectively, like a dancer or a surgeon. Keen sense of body awareness. They like movement, making things, touching. They communicate well through body language and be taught through physical activity, hands-on learning, acting out, role playing. Tools include equipment and real objects.

Musical (Music Smart)

Show sensitivity to rhythm and sound. They love music, but they are also sensitive to sounds in their environments. They may study better with music in the background. They can be taught by turning lessons into lyrics, speaking rhythmically, tapping out time. Tools include musical instruments, music, radio, stereo, CD-ROM, multimedia.

Interpersonal (People Smart)

Understanding, interacting with others. These students learn through interaction. They have many friends, empathy for others, street smarts. They can be taught through group activities, seminars, dialogues. Tools include the telephone, audio conferencing, time and attention from the instructor, video conferencing, writing, computer conferencing, E-mail.

Intrapersonal (Self-Smart)

Understanding one's own interests, goals. These learners tend to shy away from others. They're in tune with their inner feelings; they have wisdom, intuition and motivation, as well as a strong will, confidence and opinions. They can be taught through independent study and introspection. Tools include books, creative materials, diaries, privacy and time. They are the most independent of the learners.

Verbal-Linguistic (Word Smart)

Using words effectively. These learners have highly developed auditory skills and often think in words. They like reading, playing word games, making up poetry or

stories. They can be taught by encouraging them to say and see words, read books together. Tools include computers, games, multimedia, books, tape recorders, and lecture.

Logical-Mathematical (Logic Smart)

Reasoning, calculating. Think conceptually, abstractly and are able to see and explore patterns and relationships. They like to experiment, solve puzzles, ask cosmic questions. They can be taught through logic games, investigations, mysteries. They need to learn and form concepts before they can deal with details.

Naturalistic (Nature Smart)

This area has to do with nurturing and relating information to one's natural surroundings. Examples include classifying natural forms such as animal and plant species and rocks and mountain types. This ability was clearly of value in our evolutionary past as hunters, gatherers, and farmers; it continues to be central in such roles as botanist or chef. This sort of ecological receptiveness is deeply rooted in a "sensitive, ethical, and holistic understanding" of the world and its complexities—including the role of humanity within the greater ecosphere. At first, it may seem impossible to teach to all learning styles. However, as we move into using a mix of media or multimedia, it becomes easier. As we understand learning styles, it becomes apparent why multimedia appeals to learners and why a mix of media is more effective. It satisfies the many types of learning preferences that one person may embody or that a class embodies. A review of the literature shows that a variety of decisions must be made when choosing media that is appropriate to learning style.

Visuals

Visual media help students acquire concrete concepts, such as object identification, spatial relationship, or motor skills where words alone are inefficient.

Printed words

There is disagreement about audio's superiority to print for affective objectives; several models do not recommend verbal sound if it is not part of the task to be learned.

Sound

A distinction is drawn between verbal sound and non-verbal sound such as music. Sound media are necessary to present a stimulus for recall or sound recognition. Audio narration is recommended for poor readers.

Motion

Models force decisions among still, limited movement, and full movement visuals. Motion is used to depict human performance so that learners can copy the movement. Several models assert that motion may be unnecessary and provides decision aid questions based upon objectives. Visual media which portray motion are best to show psychomotor or cognitive domain expectations by showing the skill as a model against which students can measure their performance.

Color

Decisions on color display are required if an object's color is relevant to what is being learned.

Realia

Realia are tangible, real objects which are not models and are useful to teach motor and cognitive skills involving unfamiliar objects. Realia are appropriate for use with individuals or groups and may be situation based. Realia may be used to present information realistically but it may be equally important that the presentation corresponds with the way learner's represent information internally.

Instructional Setting

Design should cover whether the materials are to be used in a home or instructional setting and consider the size what is to be learned. Print instruction should be delivered in an individualized mode which allows the learner to set the learning pace. The ability to provide corrective feedback for individual learners is important but any medium can provide corrective feedback by stating the correct answer to allow comparison of the two answers.

Learner Characteristics

Most models consider learner characteristics as media may be differentially effective for different learners. Although research has had limited success in identifying the media most suitable for types of learners several models are based on this method.

Reading ability

Pictures facilitate learning for poor readers who benefit more from speaking than from writing because they understand spoken words; self-directed good readers can control the pace; and print allows easier review.

Performance

Many models discuss eliciting performance where the student practices the task which sets the stage for reinforcement. Several models indicate that the elicited performance should be categorized by type; overt, covert, motor, verbal, constructed, and select. Media should be selected which is best able to elicit these responses and the response frequency. One model advocates a behavioral approach so that media is chosen to elicit responses for practice. To provide feedback about the student's response, an interactive medium might be chosen, but any medium can provide feedback. Learner characteristics such as error proneness and anxiety should influence media selection. Testing which traditionally is accomplished through print, may be handled by electronic media. Media are better able to assess learners' visual skills than are print media and can be used to assess learner performance in realistic situations.

Theoretical Basis For M.I. Theory

Many people look at the above categories—particularly musical, spatial, and bodily-kinesthetic—and wonder why Howard Gardner insists on calling them intelligences rather than talents or aptitudes. He was quite conscious of his use of the word *intelligence* to describe each category. To provide a sound theoretical foundation for his claims, Gardner set up certain basic "tests" that each intelligence had to meet to be considered a full-fledged intelligence and not simply a talent, skill, or aptitude. The criteria he used include the eight factors: Potential isolation by brain damage, The existence of savants, prodigies, and other exceptional individuals, A distinctive developmental history and a definable set of expert "end-state" performances, Support from psychometric findings, An identifiable core operation or set of operations, and

Susceptibility to encoding in a symbol system. In Potential isolation by brain damage, several cases, brain lesions seemed to have selectively impaired one intelligence while leaving all the other intelligences intact. A person with a lesion in the temporal lobe of the right hemisphere might have her musical capacities selectively impaired, while frontal lobe lesions might primarily affect the personal intelligences. While in The existence of savants, prodigies, and other exceptional individuals, Savants are defined as individuals who demonstrate superior abilities in part of one intelligence while one or more of their other intelligences function at a low level. They seem to exist for each of the eight intelligences.

In A distinctive developmental history and a definable set of expert "end-state" performances, Each intelligence-based activity has its own developmental trajectory; that is, each activity has its own time of arising in early childhood, its own time of peaking during one's lifetime, and its own pattern of either rapidly or gradually declining as one gets older. Gardner (1993b) points out that we can best see the intelligences working at their zenith by studying the "end-states" of intelligences in the lives of truly exceptional individuals. An evolutionary history and evolutionary plausibility. While in Support from psychometric findings, By looking at specific psychological studies, we can witness intelligences working in isolation from one another.. Similarly, in studies of cognitive abilities such as memory, perception, or attention, we can see evidence that individuals possess selective abilities.

Each of these cognitive faculties, then, is intelligence-specific; that is, people can demonstrate different levels of proficiency across the eight intelligences in each cognitive area. In An identifiable core operation or set of operations, Each intelligence has a set of core operations that serve to drive the various activities indigenous to that intelligence. Gardner speculates that these core operations may someday be identified with such precision as to be simulated on a computer. And lastly, Susceptibility to encoding in a symbol system. According to Gardner, one of the best indicators of intelligent behavior is the ability to use symbols. Gardner suggests that the ability to symbolize is one of the most important factors separating humans from most other species. He notes that each of the eight intelligences in his theory meets the criterion of being able to be symbolized.

Methodology

This chapter includes the Locale of the Study, Research Design, Population Sampling, Research Instrumentation and Statistical Treatment.

Locale of the Study

Research locales are two public high schools in General Luna District, General Luna Quezon.

Research Design

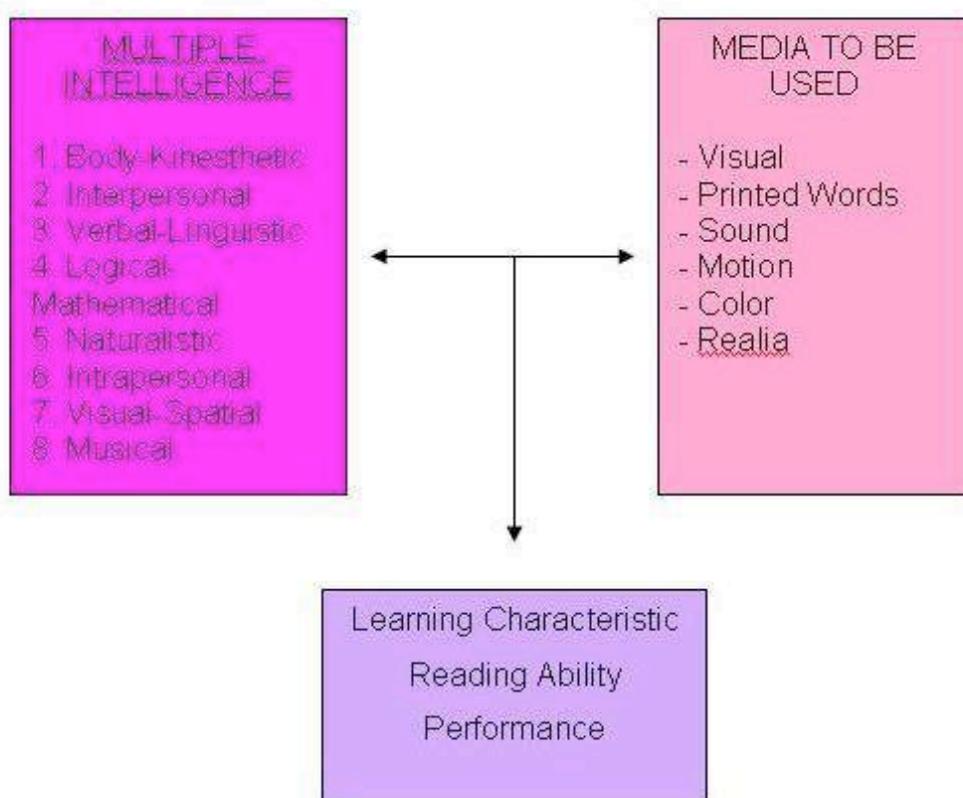
The descriptive method of research will be utilized. The study shall first identify the differentiated instruction in TLE by teachers. After it was identified, program of intervention may be given for enhancement and to overcome weaknesses so as students and teachers will be benefited. Questionnaires will be given to respondents and results then will be used for statistical analysis.

Statistical Analysis

There is a total of 200 respondent students (12-16 years old). Data results below show the percentage of the students which multiple intelligence they mainly excel.

Bodily-Kinesthetic	29	14.5%
Interpersonal	28	14%
Verbal-Linguistic	32	16%
Logical-Mathematical	30	15%
Naturalistic	16	8%
Intrapersonal	17	8.5%
Visual-Spatial	19	9.5%
Musical	29	14.5%
TOTAL	200	100%

Conceptual Framework



Theoretical Framework

Theory on Multiple Intelligence in Relation to Tle

A famous person named Gardner defines an intelligence as "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture." According to Gardner, there are more ways to do this than just through logical and linguistic intelligence. Gardner believes that the purpose of schooling "should be to develop intelligences

and to help people reach vocational and avocational goals that are appropriate to their particular spectrum of intelligences. People who are helped to do so, [he] believe[s], feel more engaged and competent and therefore more inclined to serve society in a constructive way."

Gardner's theory argues that students will be better served by a broader vision of education, wherein teachers use different methodologies, exercises and activities to reach all students, not just those who excel at linguistic and logical intelligence. It challenges educators to find "ways that will work for this student learning this topic". In relation to TLE, wherein a student is not limited to just honing his/her vocational talent and skills but also the avocational, using multiple intelligence in defining and putting into proper perspective his/her capabilities will make TLE learning an enjoyable and worthwhile subject.



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International Education and Global Education of High Schools in Taiwan

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Abstract

To expand the vision of students is one of the most important issues of Taiwan's education policy. Schools in Taiwan not only in the curriculum but also in the campus, try to make an international environment for their students. On the other hand, Taiwanese students are more easily to study abroad, and foreign students are more easily to study in Taiwan after Taiwan as a member of world trade organization (WTO) since 2002. How to take care of these issues are big challenges for the Taiwan's education authority.

Competitiveness of education is one of the indices of national competitiveness, most of the researches focus on university education. Never the less learning is a continuous journey; high school education is the fundamental of university education. The researcher of this study introduced the "international education" and "global education" policies and experiences of high school education in Taiwan; analyze the curriculum development, teachers' professional development, and international cooperation in Taiwan's high schools. This study suggests some international education and global education methods, according to the literatures and the findings.

Keywords: International education, global education, high school, Taiwan

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Introduction

The 21st Century is the age of internet and the world of global village. International education and global education are important issues for the educational innovation of all the countries in the world (Chang, 2006). Epstein (2003) argued the connection among nation's not only international trade or political agreements, but also sharing the concept of global cognition.

The methods of sharing include Medias, social networks, systematical education; and schools play an important role in the process.

Ozga and Lingard (2007) indicated globalization highlights several problems of contemporary education, challenge the boundary of traditional countries and represent the competitiveness of a nation in the world. Now a day, school education has to lead students to think how globalization influence our lives, and what we can influence the world. Global education in school is the way to let our students to have the cognition and possibility to care about the world.

The services item of World Trade Organization (WTO) included education services. Taiwan as a member of WTO should open the market of education services to all the members of WTO since 2002 (Lee, 2002; Huang, 2002). Taiwan students can study abroad, and students of the world are welcomed to study in Taiwan. The internationalization of education becomes more and more important in the future.

According to the report of Taiwan Ministry of Education (2003) "Compare the quality of higher education in Taiwan and neighboring countries of Asia", competitiveness of universities is an important index of competitiveness of a country. Nevertheless learning is a continuous journey; high school education is the fundamental of university education. To develop an international perspective during the study is an important way to gather the ability of an individual to have an excellent achievement in this global village (Wang, 2008).

International education and global education are always important issues in Taiwan high school education. This study tries to elucidate the meanings of international education and global education, and focus on their strategies of high school education in Taiwan.

1 Global education and International education of high school in Taiwan

1.1 Global education and International education

1.1.1 Global education

Global education is to lead students care about the issues of whole world, development and connection of human race, and justice among different kinds of society. Global education is also a concept of citizenship education. There are four aspects of global education: global economics, global politics, global cultures, and global environment. Global economics emphasizes on world trade, labor movement and the gap between rich and poor. Global politics focus on international organization, war and crisis, and the role of country.

Global cultures discuss media, communication, and social network. Global environments regard to the topics of climate change and nature resources.

1.1.2 International education

International education is to develop the view of students to respect every culture in the world, acknowledge their different, and realized these diversities. The international education provides knowledge, skills, and experiences that come from in-depth study, work, and collaboration in education in other countries and with international students and scholars (Hung, 2002; Chen, 2003; Yen, 2002).

2 Global education of high school in Taiwan

Taiwanese ministry of education (2011) mentions the content of international education of high school provided understanding international society, knowledge, competitiveness, and Global responsibility. This content included the concepts of global education and international education.

2.1 International education of high school in Taiwan

This study inducted international education of high school in Taiwan to two parts, one is for the local students, and the other is for foreign students. The international education for local students included understanding multicultural, cultural diversity, international concern, humanities, and developed the world view; some of these curriculums get along with second language courses. The international education for foreign students included degree programs and exchange programs, most of these are exchange programs. Around these programs, international education projects, research cooperation, and staff training are held.

3. The strategies of global education and international education of high school in Taiwan

According to the White Paper on international primary and secondary education (Taiwan ministry of education, 2011), the international education should focus on school-base and set up a resources collaboration system.

3.1 The school-base strategies

There are four strategies from the ministry of education and the bureau of education in local governments to implement global education and international education. These strategies included curriculum development and teaching, professional growth of teacher, international exchange, and internationalize of campus. The first and second strategies are the fields of global education, the rest strategies are the regions of international education.

3.2 The strategies of global education in Taiwan's high school

3.2.1 Curriculums development and teaching

There are three major topics of global education for Taiwan's high school authorities to develop their curriculums. The first topic is called global issues, included peace and conflict, cooperation and competition, justice and human rights, environment and sustainable. The second topic is cultural understanding, included multiculturalism, cultural knowledge, and cultural contact. The third topic is global connection, included globalization, and issues connection. The aim of these curriculums is to bring up the concept of world citizenship to the students.

Taiwan high schools follow these major topics developed their own strategies, such as introduction of climate change, famine in Africa.

For example, follow the major topic of climate change and the local feature, Taipei Municipal Dali high school introduced climate change to their students, and developed the curriculum of Huajiang wetland protection. Wetland is so call “kidney of earth” the functions of wetland not only clean up the water but also mitigate global warming. Huajiang wetland is the confluence of Hsintien and Tahan River, because the terrain leveled off, deposited a large amount of sediment and organic matter, it’s a rich biodiversity wetland. The students of Dali high school can reach Huajiang wetland by walk in 20 minutes. The wetland protection curriculum in Dali high school introduced a very important idea of global education, which is “Think Globally, act locally”.

3.2.2 Professional development for teacher and staff

In order to catch up new global issues, some of the professional development programs were held by education authorities; some of the programs were held by high schools, these programs also welcomed the faculties and teachers of other schools to join in. These programs focus on improve the ability of teachers to develop the curriculums of global issues, and the ability of staff to manage such international affairs.

Taiwan ministry of education hosts the website of International education for primary & secondary school, which provides lots of resources and information for the teachers to develop their courses. The ministry also held the contest of international education for primary & secondary school. These are useful for the teachers to improve their curriculums.

3.3 The strategies of international education in Taiwan’s high school

3.3.1 International exchange and cooperation

The International cooperation methods of Taiwan high schools included participating international conferences, friendship and exchange programs between sister’s schools, international volunteer service, overseas study tour, educational visiting...etc. All of these methods are try to expand the view of the students.

Most of Taiwan's international cooperation countries are in Asia, followed by the Americas, Africa's the least. Most of the foreign students and teachers’ activities in Taiwan are visiting and conference programs, followed by short term interactive programs, exchange programs are the least. Most of Taiwanese students and teachers’ abroad activities are overseas experiential learning programs, and international competition conferences.

For example, a topic of an international interactive program “Nuclear power: peace and war”. This interactive program was held by New Taipei municipal Jin-Shan high school and Hiroshima Prefectural Kouchi high school (Japan).

The location of Jin-Shan high school is near to the second nuclear power plant which runs by Taiwan Power Company in New Taipei city. Kouchi high school is located in Hiroshima Prefecture, and Hiroshima was suffer by atomic bombing in World WarII. There are serval subjects followed the topic “nuclear power: peace and war”. In

history class, teachers design a course outline about World WarII, and introduced the influence of atomic bombing. In science class, nuclear power plant was introduced briefly, and teachers arranged a trip to visit the second nuclear power plant. In English class, students had to make a brief introduction of their own school. In Geographic class, Hiroshima National Peace Memorial Hall for the Atomic Bomb Victims was introduced to the students.

Jin-Shan high school students and teachers visited Kouchi high school on November 24, 2013; Kouchi high school v students and teachers visited Jin-Shan high school on September 26, 2014.

3.3.2 Internationalization in campus

The Internationalization methods in Taiwan high schools campus included multiple-languages facilities, internationalized administration, internationalized curriculums, internationalized learning, internationalized human resources, and international partnerships.

According to the statistics of international education network for Taiwan primary and secondary schools, most of the multiple-languages facilities are bilingual (Chinese and English) education facilities; and some teachers organize several teams to develop international curriculums.

For example, an internationalized campus project “Bonjour Taipei!” was held by St. Bonaventure Girls’ Senior High School, and several subjects followed this project. In Geographic class, follow the MRT lines of Taipei and Paris, several famous viewpoints were introduced. In Art class, many public arts of both cities were introduced to the students.

3.4 Resource Integration and Support Systems

It’s impossible for an individual or a department to take care the entire international or globalization education works. It needs the resources from the government, the willing of principals and teachers, budget and rules. It’s important to build up a resource integration and support system as the backup force.

3.4.1 Support Systems

The local governments set a guidance committee of international education for high schools, which in charge of the all missions. A coordinate working group was set under the committee, which integrated the resources included human resources, and supported high schools to organize their own international education working team.

3.4.2 Resource Integration

The local governments integrated budgets from Ministry of Education and other organizations, the revenue subsidized their public high schools and some private high schools. This subsidy is a very important income for high schools to deal with all about the international education works. If the schools located in disadvantaged areas, a special fund should give to these schools by the Ministry of Education. This special fund is a guarantee to help those students who live in disadvantaged areas have the chance to have international education curriculums.

Conclusion

4 Second foreign language

In order to extend the view of students, second foreign language education becomes more and more important in Taiwan high school. The first foreign language education in Taiwan is English, and begins in third grade of elementary school. After six years of English education, students have chance to learn second foreign languages in high school, but it's not a formal curriculum. It's hard to enhance the ability of second foreign languages of high school students. This study suggests the government should set a clear policy of language education, especially the second foreign languages curriculum.

4.1 Chinese language courses for foreign students

Most of the international interactions of high schools in Taiwan are interview among the schools, participating international competitions; only few numbers of exchange students or foreign students in the campus. According to the impact of low birth rate, and the change of population structure, the total of students in 2028 will be half of 2013; which means there are lots of educational resources can develop the international curriculums. Although language is an obstacle for foreign students to study in Taiwan, learning Chinese became more and more popular in these years. This study suggests that, the courses can be more flexible for foreign students in high schools. High schools can cooperative with Chinese language center of universities, so the foreign students can have their Chinese class in these centers, it will raise the intension of foreign students to study in Taiwan.

4.2 Overseas Chinese to study in Taiwan

Taiwan government encouraged overseas Chinese to study in Taiwan since 1954. Most of the overseas Chinese students back to their resident countries after they graduated, and have great achievement in every field. These overseas Chinese students become strong backup when Taiwanese companies wanted to invest or trade with Southeast Asian countries (Lee, 2010). Most of the overseas Chinese students studied in universities, only few of them studied in high school. This study suggests the government and high schools encourage more overseas students to study in Taiwan's high schools.

4.3 Different international education policy for different education stages

Taiwanese government released the international education white paper for elementary, middle and high schools in 2011. According to the aims of education, different education stages should have different policy for international education. Most of the international or global education policies are focus on university education. The teenagers especially high school students need more international or global viewpoints to be a global citizen. This study suggest to the education authorities of every countries, should look highly of the important of international or global education in high school stage, especially in this internet era.

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***Challenges and Benefits Those New Technologies Bring to Teaching
Mathematics***

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Abstract

Math anxiety is sometimes viewed as a topic where is nothing new to add. As a result there may be challenging to keep collegial conversation fresh and focused on potentially helpful strategies.

In recent years, all these old problems have resurfaced in online education. New issues also arise due to the loss of face-to-face communication between students and instructor.

Math anxiety develops early on and is not easily alleviated. We believe that the biggest factor in easing math anxiety is the teacher. But many of them suffer from math anxiety themselves, especially at the elementary school level, where most teachers are not math specialists. Therefore, we believe that training teachers to be math anxiety-free is crucial. In this study, we present some strategies that we have found to be effective to relieve math anxiety for online prospective teacher students and conduct a survey to determine how effective they are.

In many research papers, most investigators focus only on one or two factors contributing to math anxiety. Our study is based on our many years of experience teaching math at the university level, and focuses on math teacher preparation. Our analysis shows that only a combination of different strategies utilized with a practical approach can yield a positive result.

Examples of those strategies and how to combine them will be shown. . New challenges of online education in math and methods to overcome math anxiety for future teachers will be presented.

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Introduction

Strong mathematics skills are critical for many careers in modern technological society. At the same time, the term "math anxiety" is so common that it became almost a synonym of mathematics. Numerous researches have been made about mathematics anxiety and how to cope with it; for example, you can find a very good list of references in Hellum-Alexander's review (2010).

Mathematics anxiety, according to Ashcraft (2002) is "commonly defined as a feeling of tension, apprehension, or fear that interferes with math performance"

That feeling comes from early school years, goes to college, and even students at university level with mathematics major still experience math anxiety in a great degree (Zakaria, Nordin, 2008).

Tapia (2004) stated that students having little or no anxiety scored significantly higher in motivation than students with some or high mathematics anxiety. Ma (1999) found that "effective motivation was a predictor of mathematics achievement", and "the relation between mathematics anxiety is significant, a high level of anxiety is associated with a lower level of achievement" (Quilter, Harper, 1988). This connection is easy to understand because students with high motivation usually enjoy doing mathematics problems and absorb mathematics concepts better while solving problems. Students' attributions or beliefs about the causes of their success and failure have been repeatedly linked to their engaging and persisting in learning activities. Students' self-regulation improves mathematics learning.

Many authors investigate a contribution of teachers and their individual methods to student mathematics anxiety. For example, Greenwood (1984) stated that the principal cause of mathematics anxiety is based on teaching methodologies.

While the literature indicates that many factors contribute to math anxiety, it frequently mentions the instructional methods used by teachers as significant in influencing students' attitudes toward math. Cavanaugh (2007), however, noted that there has been relatively little empirical research examining the effect of classroom instructional methods on math anxiety despite many investigations of the effect of the problem on student performance and cognitive processes. Boaler (2008) states that the design and presentation of mathematics in schools foster math anxiety. The standard method of instruction in many math classrooms is a significant factor leading to poor performance, which is the first identified phase of math avoidance and anxiety.

In most classrooms, the teacher presents math problems in a didactic manner, with the students disengaged from the learning process and discouraged or prevented from discussing the material or asking meaningful questions. Add to this pressure from the expectation that students must master the concepts and procedures that will be assessed on standardized and high stakes tests, and what evolves is rigidity in curriculum and teaching approaches.

In some cases, a teacher's poor mastery of the material can increase math anxiety in students because the teacher communicates uncertainty in presentation and in response to questions (Cavanaugh, 2007). In addition, a teacher with poor mastery of the subject or appropriate teaching methods may not be able to remedy the difficulties of students in understanding the material.

Test anxiety and mathematics anxiety have been found to relate to mathematics performance in both children and adults. That study (Racheal McAnallen, 2010) investigated mathematics anxiety in elementary teachers and whether those who experience mathematics anxiety also have professional anxiety about teaching mathematics.

A researcher-developed instrument called the McAnallen Anxiety in Mathematics Teaching Survey (MAMTS) was administered to a sample of 691 teachers from eight states representing geographically diverse areas of the United States in rural, urban, and suburban communities. Responses were used to investigate mathematics anxiety in elementary teachers as well as several demographic questions.

The majority of the respondents had only taken Algebra I as their most advanced course in high school, and approximately 40% of these participants had enrolled in lower level or what might be considered remedial level mathematics courses in college. Approximately 33% of the participants reported that they had mathematics anxiety and higher levels of mathematics anxiety led to decreased feelings of enjoyment about mathematics. Mathematics anxiety was initially experienced in the primary grades by 12% of respondents, in the elementary grades by 26%, in middle school by 22 %, and later by the remaining 40 % of those who experienced mathematics anxiety.

The participants who reported having mathematics anxiety attributed it to negative elementary or secondary interactions with teachers about mathematics, poor teaching practices while they were in school, and/or negative experiences taking algebra or geometry in high school (Racheal McAnallen).

Math anxiety is the result of a cycle of math avoidance that begins with negative experiences regarding mathematics.

We believe that in order to break that vicious circle we should start from preparing teachers with “no math anxiety” skills.

Rationale of Study

The purpose of this observation was to incorporate several strategies to the learning process in order to help students (future teachers) to lower and overcome their mathematics anxiety. Based on results of different researches, the main idea was to establish a strong motivation for students to enjoy mathematics and see its value in modern society.

Usually, researchers prefer to deal with measurable parameters and statistical analysis. Someone can say that such approach even more applicable when you talk

about mathematics although it is mathematics anxiety. Our understand of the problem is that because it is an " emotional reaction" on one particular discipline, you should find out first what parameters, or factors are involved in forming mathematics anxiety. The list of such factors includes, but not limited:

1. previous negative experience with math starting from kinder garden, elementary school, etc.
2. test failure
3. low self-esteem
4. low achievements
5. poor teaching methodologies
6. low grades in math
7. uncaring attitude of teachers
8. genders of learners
9. age discrimination.

Of course, other researchers can extend that list far more.

Being mathematicians we can say that the problem with that big number of parameters cannot be solved by just considering one or two variables without measuring effects of other variables. On the other hand, a practical solution can be as valuable as any other measurable investigation. Being practitioners, we just found our own effective way to cope with student mathematics anxiety.

We could not find any specific research about coping with math anxiety for online students; so, we developed our own study on that topic. A survey containing eight questions was given to a sample of 30 students, and the results are given below:

1. Are you math anxious?
 - a. Agree – 18%
 - b. Neutral – 39%
 - c. Disagree – 43%

2. Is math helpful for other classes you are taking?
 - a. Agree – 43%
 - b. Neutral – 32%
 - c. Disagree – 25%

3. Do you memorize math rules?
 - a. Yes – 71%
 - b. No – 25%
 - c. N/A – 4%

4. Is math anxiety a familiar feeling for you in online classes?
 - a. Agree – 39%
 - b. Neutral – 36%
 - c. Disagree – 25%

5. Is math helping you in everyday life?
 - a. Agree – 39%
 - b. Neutral – 54%

- c. Disagree – 7%

- 6. Do the math rules used to solve problems make sense to you?
 - a. Agree – 61%
 - b. Neutral – 28%
 - c. Disagree – 11%

- 7. Do you feel like studying math requires a lot of time?
 - a. Agree – 48%
 - b. Neutral – 48%
 - c. Disagree – 4%

- 8. Do online classes help you to overcome math anxiety?
 - a. Agree – 53%
 - b. Neutral – 11%
 - c. Disagree – 36%

Our sample for the study was selected randomly, and we believe (based on our experience) that the picture is very typical.

The results of the survey show that math anxiety is very common among online students, and even among those who are “neutral” it still exists in some degree. It can be easily predicted, but the question is: how to overcome that syndrome when you cannot meet students on regular face-to-face base.

During last few years, we developed several steps strategy which allowed us to decrease or even get rid of math anxiety for our students. Those steps are the following:

1. Send an encouraging and enthusiastic letter at the beginning of the course. In those letters, we usually say that we know how often students have different level of math anxiety, and then we say: Let us help you to be successful in this math class, and we will show you that math can be enjoyable, human, and fun.
2. Put a number of jokes on mathematicians and struggling students to recognize that our students are not the only ones suffering from math;
3. New technologies allow us to make online classes similar to regular onsite ones, and we organize a short live session/seminar explaining what is math anxiety and ways to overcome that phobia. We ask students to share their own experience in studying math. It is more difficult to detect math anxiety in online students, but we have the opportunity to talk one-to-one to each student on the live sessions.
4. Send students a check list with some questions regarding their previous math study experiences such as: early childhood math encounter, math incompetent teacher, math myths, low grades on math tests, and importance of math in their life. It allows students to make a kind of inventory of what problems and fears they have, and be ready to cope with them.
5. There is a myth saying that usually people don't need math in their regular life. We give many examples of really helpful hints math can provide to everybody like which mortgage or credit cards are better, why they need to know how to make estimations etc.

6. We also develop a test taking strategy which we present to our students in the form of a few critical statements like:
 - Work first on the problems that come most easily for you;
 - Does your answer make sense?
 - Does your answer fit your estimate?
 - Recalculate.
 - Do your problem twice.
 - Check your usage of signs.
 - Check your decimal points.
 - Recheck your writing.
 - Check your exponents.
 - Reread visuals.
 - Substitute your answer.
7. From the very beginning, we provide our students a number of reliable and worthy tutorial resources. Nowadays, everybody can find tons of internet resources, so, as instructors, we believe that only a limited number of them should be recommended.
8. Also, we realized that a frequent interaction with online students and encouraging positive support built students' confidence and alleviate their math anxiety.

Conclusion

An early and continued focus on preparing “math anxiety free” students is critical, especially if they are going to be tomorrow's teachers.

Many students who experienced math anxiety believe that they cannot be successful in mathematics for different reasons, based on their previous educational experience. The impact of early childhood, elementary school teachers, and frustrating experience with memorization instead of understanding should not be underestimated.

Under such conditions, our approach to focus on alleviating math anxiety in future teachers is a critical element in preparation of future generation of the people who would enjoy math and find the right place in the modern society.

“Today's teachers can and must learn to serve as mathematical linguists, artists, musicians, and dancers so they can instill the joy and wonder of mathematics to generations of students in the future” (Rachel R. McAnallen).

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Shining Stars amidst Dark Clouds: Enhancing Positive Aging through a European Project

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Abstract

Statistics show a generalized aging in population for the most industrialized countries. Absence of policies on aging, like in Portugal, change in the household composition, negative stereotypes of the old conveyed by the media, the post-modern individualism and consumer mentality contribute to marginalize the elders who are considered a burden to society, relegating them to isolation that often causes depression and makes them reluctant to leave home and engage in learning activities to improve their wellbeing.

This article aims to present results of a European funded project (Grundtvig Learning Partnerships) – *Food for Body, Mind and Spirit: Gathering Europe around the Table* – in which a group of about twenty people, mostly aged seventy-five and over, in a Catholic Parish in Lisbon, Portugal, was involved. Food was used as a catalyst to promote healthy aging and lifestyle, to encourage peer learning, as well as intergenerational and intercultural interaction. Findings suggest that the project motivated older people for self-realization by empowering them; enhanced their self-esteem and self confidence, fostered better nutritional habits, as well as greater willingness to engage in physical activities.

The project further improved intergenerational communication within the elders' families. Additionally, interactions between different groups in our organization that took place to develop the project objectives and activities contributed to an increased awareness that commonalities among people from different cultures, traditions and religions surpass differences, through understanding and respect for the other.

Keywords: positive aging; intergenerational communication; healthy nutrition; cultural and religious diversity

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Introduction

In the general context of Europe, like in most developed countries in the world, population is aging and the older population is itself aging (United Nations, 2013). Specifically in Europe, people live longer and healthier, population aged 80 years or over – “the oldest old” is itself aging, the number and proportion of centenarians (people aged 100 years or more) is growing even faster, and the older population is predominantly female, while fertility rates are below replacement levels (European Commission, 2014). In Portugal, population aged 65 and over represent about 19% of the total population, and the group aged 69 and over has increased by 26% (Instituto Nacional de Estatística, Statistics Portugal, 2014).

Portugal has the fourth highest percentage of elderly people in the European Union. In fact, young population under 15 years old represent 14.9%, compared to 19.2% of elderly – aged 65 and over (Manuel dos Santos Foundation, 2014). Moreover, there has been a great change in household composition: families are no longer inclusive, 60% of the elderly live alone or solely with their spouse, Lisbon and the Alentejo regions being those with the highest proportion of older people living alone (idem). Most elderly in the country have low pensions and studies show that socio-economic disadvantage is a social risk for depression in later life (Blazer & Hybels, 2011; Berman & Furst, 2011).

As Olshanky (2012) remarks, a significant percentage of the older population is physically and mentally healthy, wanting to work and to be engaged in every aspect of society. Nevertheless, negative stereotypes conveyed by the media and marketing – news, television, film and advertising – with their obsession for eternal youth and physical beauty, portray aging as decline and of diminished value, emphasize the “burdens” of growing old, use negative language about aging, and depict the elderly as foolish or inept (Milner et al, 20012).

Thus, aging is not viewed as a progressive process, but as something that “attacks us” when we are around seventy-five, and “the general population stereotypes older people as handicapped, limited in what they can do, rigid in their thinking, and expensive because of high health-care cost” (Hennezel, 2011: 113). Post-modern individualism, with its focus on individual self-realization and fulfillment of individual desires, excluding alterity, demonstrating indifference to common good, and denying the need to consider the future (Lipovetsky, 1989) has contributed to the present state of affairs. Pulcine (2013) also refers to the consumerist transformation of mass society that creates false needs and a sense of fragmentation and discontinuity in families. As a result, elderly people feel unwanted and socially excluded, and often internalize those stereotypes against themselves, with negative consequences on their self esteem and self confidence.

What policies have been implemented to face this demographic challenge? Despite the “action plan for healthy aging in Europe, 2012-2020” that the World Health Organization - WHO (2012) presented to politicians, civil society, communities, families and individuals, policies directed to population aging have primarily been of an economicist nature, or even absent. In Portugal, although the National Health Service still provides affordable and good quality health services, austerity measures, due to the economic crisis since 2008, have led to deterioration; between 2011 and

2014, total public spending within the health sector decreased by 676 million Euros (Global Age Watch, 2014). Furthermore, there is no national policy on aging (idem). Likewise, educational policies in Portugal have not considered education for third age citizens, i.e. those who still have functional capacity (Gonçalves, 2014), who differ from the fourth age, a term used for those after 75 (Jarvis, 2001) or when the older person ceases to be independent (Jarvis, 2007). Baltes & Smith (2003) situate the fourth age in the mid-eighties and beyond, when individuals begin to experience decline in vision, hearing, strength, functional capacity and cognition.

Volunteering experience in this project leads us to conclude, with Jarvis (2001 and 2007) that this age group needs “learning therapists” who help them learn. Furthermore, we agree that “postponing the implementation of healthy aging policies in a period of economic austerity may prove more costly in the long term and can be counter-productive to the sustainability of welfare policies” (WHO, 2012: 7).

We believe that there is an urgent need to improve the lives of these elderly, especially the 75 and over, to (re) integrate and help them regain their status and raise their self-esteem. This can be done by building networks of support to provide educational activities in order to extend their autonomy, by enhancing their self-esteem and self-confidence, helping them to have healthy lifestyles so that they can live in their own homes as long as possible. Support should also be provided to families that chose to keep their elderly at home.

In fact, other than being a right, these supports turn out to be economic gains, because they keep the elderly more active, happier and away from hospitals, health care centers and nursing homes. We believe that the solution is not the massive creation of nursing homes. Indeed, in our country there has been a proliferation of illegal nursing homes lacking specialized workers or adequate space (Global Age Watch Index, 2014), with the regrettable consequences reported in the media. Moreover, there is evidence that in their own homes, people age better and more slowly than those in such institutions, where the incidence of depression is high (Jarvis, 2001; Martins, 2006; Vaz & Gaspar, 2011).

As a result of the present economic crisis, new forms of solidarity and engagement have emerged in Portugal, where there has been a significant percentage of people that volunteer their time to help the most disadvantaged, namely the elderly, between 2008 and 2013 (OECD, 2014). Such is the case of the author of this paper, who has been working with a group aged mostly seventy-five and over in a Parish of Lisbon for more than three years. As a researcher in education and development, she started by assessing the needs of the group, through action research (Somekh, 2006; Kemmis & McTaggart, 2005), which is appropriate for this context where specific knowledge is required for a specific problem in a specific situation, without the concern of results generalization.

The aim was to understand the personal and social learning needs of these persons so that they could become more autonomous, happier and mutually supportive. After the first year of work, the opportunity to join a European financed project (Grundtvig Learning Partnerships, 2012-1-PL1-GRU06-279473) that involved both trainers and learners mobility to each partners’ country, proved to be a booster for the objectives pursued, as it will be described in the next sections.

The project – Food for Body, Mind and Spirit: Gathering Europe around the Table

1. Local and partners' context

The Saint John of God Parish is an urban community, located in a Lisbon area which was expanding in the 1950s. It started with a young population of higher middle urban culture that is now aging, although, lately, young couples and families have come to live here. Because of the growing number of elderly who feel lonely, the Parish provides informal learning led by volunteers, where a group of about 20 elderly people, mostly 75 and over women (widows in general), regularly meet in the Parish premises. Many suffer from social isolation, and some were at risk of depression when they joined the group.

Six other organizations from Germany, Italy, Lithuania, Poland, Turkey, and the UK had similar challenges related to elderly (one with immigrant women) in their communities. They reported the lower income of the elderly, often resulting in poor health and wellbeing, loneliness – the elderly feeling unwanted and socially excluded; low self esteem; few opportunities for self-expression; few opportunities to exercise physically, mentally and spiritually; often victims of ageism, in short, being voiceless. Because of the above reasons, partners felt a need to (re)integrate these older people, helping them regain their status and raise their self-esteem and self-confidence.

2. Overall goal and specific objectives

Using food as a catalyst, the aim was to empower older people to regain their status in society and self-esteem. In order to accomplish this goal, specific objectives were pursued: we started by providing knowledge on healthy, affordable food and, at the same time, we motivated the elderly to become aware of their abilities and encouraged them to expand such abilities. The next step was to raise awareness on environment sustainability, thus making them face the present and the future, and to view themselves as persons who share responsibilities for themselves and for future generations. Since the project involved visits to every partner organization, both by learners and trainers, learning about other European cultures, traditions and religions was implemented. Another objective was to improve interaction among generations. Although for most partners the inclusion of ICT was also a specific objective, it appeared to be very difficult in our community, because our learners did not find any interest in even touching computers. However, surprisingly enough, ICT has proven to be a major trigger to foster intergenerational learning within families of the persons in our group, as it will be demonstrated in a subsequent section.

3. The approach

To reach the project goal and objectives, partners have developed relationships with other internal departments/groups within their own institutions, as well as with other local institutions. Visits to partners' institutions during the project, offered both trainers and learners opportunities to share experience, methodologies and tacit knowledge, through joint activities – workshops, seminars and lectures. Blogs created by each partner, as well as a common project site, provided means of interactive learning between partners that enabled knowledge exchange as well as dissemination

of project outcomes and the final results – an eBook and a photo exhibition under the motto “Love Food, Hate Waste”.

Learning took place mainly in informal settings and encouraged peer learning and intergenerational communication. Activities included collecting recipes, stories and legends about traditional cuisine, arts and crafts related to food and nature, recycling by re-creating – patchwork, lace and other artistic use of leftovers; reading and reciting poetry, and storytelling, among others. Since most of our elderly live alone, an expert in first aid volunteered to do a workshop for our group to learn first aid and how to prevent accidents at home. A challenge remained for volunteers/trainers in our community: how to motivate the group for physical activity, when most do not even feel good within their own body and feel its limitations as impossibilities? “Joyful fitness” (Figures 1 and 2), a dance workshop with a professional dancing company proved to be effective: after watching a professional dance performance, our elderly were invited to perform some dance steps and movements adapted to their age.



Figures1 and 2: Joyful Fitness

Monitoring and evaluation was systematically held during the whole project. After each meeting in each partner’s institution, a questionnaire, with close-ended and open-ended questions, was sent both to learners and trainers that had participated. This was followed by a quantitative and qualitative analysis that gave rise to a report that was sent to all partners, highlighting what had to be improved.

4. Outcomes and results

Evaluation in our group was implemented through participant observation, analysis of behavior change and content analysis of discourses. It showed evidence that our *elderly have become aware of their abilities and are willing to exhibit and improve them*. Findings suggest that they make healthier and affordable food choices, and demonstrate higher self-esteem and self confidence. Positive changes in behavior and attitudes have been observed. With the exception of a recently widowed woman, our learners tend to replace their black or dark clothes for lighter ones, show greater hair and body care, talk now more positively about themselves and make positive statements about themselves and the others. In addition, they take the initiative to recycle materials and not to waste food.

Peer learning in an informal context, both locally and during partners’ visits played a major role in *strengthening our learners’ self-esteem and self-confidence* because

learning with and from each other through face-to-face interactions made them aware of their skills and capabilities. Hence, they were able to organize and plan activities and work collaboratively under the trainers' subtle monitoring. They transmitted to each other their tacit knowledge which is intuitive and cannot be completely expressed either in words or in writing, that "marvelous capacity of the human mind to make sense of a lifetime's collection of experience and connect patterns from the past to the present and future (Leonard & Sensiper, 1998: 112)".

The project also fostered *intergenerational communication within families* through ICT, and this was an unexpected outcome because of our learners' lack of interest for computers and ICT in general. However, because they were willing to see their own recipes, legends and stories about food on our blog, and later in the e-Book, they requested their children and grand-children to help them in the search for material on the Internet. Thus, younger members of families started emailing the trainers/volunteers to send material from their elderly relatives to be inserted in the Portuguese blog; children of learners participating in a visit to a partner took their mothers to the airport and picked them on arrival. This process enhanced *communication between elderly families and trainers*.

Increased knowledge about partners' countries, traditions, cultures and religions, widened horizons, enhanced acceptance of "the other" and led to *intercultural interaction*. The two main results of the project demonstrate such intercultural interaction: an e-Book with a printable version in partners' languages, providing traditional affordable, natural food recipes from different countries and ethnic groups, as well as photos of creative craft, legends and stories about food. The book is a valuable contribution for the sustainability of the project as it allows a wide range of new experiences, making new recipes from partners' countries and the desire to expand knowledge of their traditions. There was also a photo exhibition, displayed on the project website, subsequent to national photo competitions in each partner country which were open to each of the partners' communities, under the motto "love food, hate waste", and which was another trigger for increased intergenerational learning.

Social ties and networks both within the group and between other groups in our Parish, as well as interaction with our partners, opened perspectives of new projects and interchange. This fact was reported by all partners, especially from Turkey, where both trainers and learners had their first opportunity, through this project, to go abroad and make foreign friends, as well as to show their culture, religion and traditional cuisine. Visits also fostered intercultural and inter-religious interaction, examples of which are paintings with religious motifs by a Turkish trainee that evoked similar ones in the Christian tradition (e.g. angels), visits to mosques and photos of ancient versions of the Koran in Turkey, or a visit to an Evangelic church in Germany. All these have been later objects of photo observation, explanations and discussion.

Discussion of findings

As Pope Francis stated in Barcelona, 13 Jun, 2014, "by discarding children and the old, we discard the future of a people because the young will pull us strongly forward and the old will give us wisdom". Educational systems in general are concerned with education of youth and have few or no concerns at all for lifelong learning of the elderly population, those who are no longer productive. However, our results

demonstrate the need for policies directed to this population that maintain their autonomy for as long as possible, since a literature review prior to the project has shown that in their homes they are happier and healthier than in nursing homes. Because both the energy of the young and the wisdom of the old are complementary for a better life in every community, enhancing intergenerational communication is of primary significance. This was the most difficult objective to achieve in our project, even in a community like ours, where there are groups of different ages. Future similar projects should carefully plan activities to achieve this objective from the beginning. Another limitation is that although encouraging, our findings are suggestive rather than conclusive. Some are merely seeds that must be nurtured to have a long lasting effect.

We know, for example, that change in healthy nutrition is easier said than done, because change is a process. Additionally, the few women who still live with their spouses are mostly influenced by them and their choices. This requires a structured and joint intervention with National Health Care System, namely through family doctors. Last but not least, it is noteworthy to stress the relevance of systematic monitoring and evaluation throughout the whole process to withdraw adjustments to be made, strengths and weaknesses to be identified and subsequent steps to be improved accordingly.

Conclusion

Outcomes and results of this project strengthen the idea that informal learning can boost autonomy of older people, providing them with diverse learning opportunities, empowering them to help themselves and to remain engaged, at the same time combating negative stereotypes of aging that hinder relationships between generations and undermine social solidarity. Although findings cannot be generalized, we believe that this model can be replicated in other contexts, with necessary adaptations. The project helped participants to gain confidence in their capacity to learn, by listening and working alongside others, learning from mistakes, sharing their own skills and learning from others.

Activities also challenged their physical and mental abilities in a supportive atmosphere. The project fostered empowerment of the elderly, awareness of their abilities and willingness to improve them, strengthened their self-esteem and self-confidence, and enhanced intergenerational communication within families, as well as communication between families and volunteers/trainers. Furthermore, intercultural interactions were facilitated because of the possibility to visit partners, obtain knowledge about their countries and then share it in our group. Last but not least, the project reinforced and created social ties and networks, both in our community and among partners. Projects like the one that has been described can stimulate friendship and peace among people from different countries and religions, because very often intolerance and prejudice is the result of ignorance about others.

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*An Analysis of Creative Process Learning in Computer Game Activities through
Player Experiences*

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Abstract

This research investigates the extent to which creative processes can be fostered through computer gaming. For investigating creative processes in this domain is proposed. This research tends to focus on games that have been specifically designed for educational purposes: Digital Game Based Learning in terms of creativity. This paper describes a behavior analysis for measuring the creative potential of computer game activities and learning outcomes.

Creative components are measured by examining task motivation and domain-relevant and creativity-relevant skills factors. The research approach applies heuristic checklists in the field of the gameplay to analyze the factors that the stage of player activities involved in the performance of the task and to examine player experiences with the Player Experience of Need Satisfaction (PENS) survey. The player experiences are influenced with the most complex of game play interactions through player experiences; competency, autonomy, intuitive controls, relatedness and presence. It examines the impact of these activities on the player experience for evaluating learning outcomes through school record.

The study forms designed to better understand the creative potential that people engage for knowledge and skills being learned during the course of playing. The findings show the creative potential that occurred to yield levels of creative performance within game play activities to support learning. The anticipated outcome is knowledge on how video games foster creative thinking as an overview of the Creative Potential of Learning Model (CPLN). CPLN clearly understand the interrelationships between principles of learning and creative potential, the interpretation of the results is indispensable.

Keywords: Creative Potential; Learning Model; Digital Game Based Learning; Player Experience; Game; Creative component

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Introduction

A digital game involves role-play characters, clever and complex problems to solve, and compelling music and graphics (Shute, 2011), knowledge and skills being learned influence during the course of playing. While there has been significant growth in game-based learning research in the past two decades (Habgood and Ainsworth, 2011), among those studies, this research focuses on the games that have been specifically designed for educational purposes and facilitate problem-solving skills.

Games, in general, support the development of critical thinking through visualization, experimentation, and creativity (Amory, 2007). Game elements normally provide problem solving experiences as players try to break down the tasks, engage meta-cognitive skills, and think critically (Turcsányi-Szabó et al., 2006). Games also offer an opportunity to explore new ideas and actions through the diversity of game play opportunities generated by communities of players. As a consequence, the anticipated outcome is knowledge on how video games foster creative problem and learning processes.

Creative Potential

To identify the potential of games to engage the players in creative processes, criteria related to activity undertaken need to be clearly defined. As mentioned in the works of Paras and Bizzocchi (2005), games had great potential to support creative processes (Paras and Bizzocchi, 2005). Furthermore, creative ideas resulted from the novel combination of ideas (Spearman, 1930), this creativity involves a process of divergent and convergent thinking (Amabile, 1996), and that problem solving plays an important role (Clark et al., 1965).

Divergent and convergent thinking are the core elements of the creative process. Divergent thinking is important for idea generation (Amabile, 1996), and is necessary to produce many alternative solutions to the problem (Gordon, 1961). Convergent thinking, as a creative process, occurs in the idea validation stage (Amabile, 1996). It allows an individual to select the correct way to approach the task at hand (Sviderskaya, 2011), with the ability to select a single response from a series of alternatives (Clark et al., 1965). To develop interactive experiences that incorporate these valuable and educative learning processes, it firstly needs a clear understanding of how different game elements are combined to produce the creative potential.

Game Activity Components for Creative Gameplay

Some studies yielded a specification of particular task behaviors that are strongly possible to predict creativity the creative game potential measures identified by analyzing game activities. The game play activities and the creative process components can facilitate creative processes, the game activities related to the creative potential during playing game. Thus, these activities are able to support learning of individuals (Inchamnan and Wyeth, 2013). Playing games has a significant role to help people to learn to solve their problem (Myers et al., 2010).

Game activities have influences on the creative potential through creative gameplay. For example, game activity facilitates creative-relevant skill and provides greater

opportunities for players to take a wide focus when engaging in gameplay with open-end goals. The feedback activities provides positive reinforcement which enhances free-choice and self-awareness (Inchamnan and Wyeth, 2013).

Self-Motivation Reports

The game environment is the medium that allows players to achieve such experiences. Games significantly extend the range of experiences available to an individual. Enjoyable game experiences result from players being able to work through the game interface to become immersed in playful activity. Within this study project measurement of player experience is based on self-determination theory (SDT) (Ryan, 2000). SDT has been successfully applied in many study discipline such as sports, education, and leisure domains. Przybylski, Rigby and Ryan (2010) applied SDT to the video game player motivations. Based on SDT and other relevant theories (e.g. presence), Przybylski and his colleagues developed the Player Experience of Need Satisfaction (PENS) measure, which assesses the game play experiences in terms of competence, autonomy, relatedness, intuitive controls, and presence/immersion (Przybylski et al., 2010).

In this study, to assess game play experiences, the 21-item PENS survey was adopted. It evaluates game play experience from five dimensions: competency, autonomy, relatedness, presence, and intuitive controls. Each item consists of a statement on a seven-point scale, ranging from 1 to 7. The interactive experience with the game environment allows players to express their creativity and intentions (Sweetser and Johnson, 2004). This learning experience allows players greater freedom in term of decision-making.

Game Based Learning

There are many new approaches toward the education, teaching and learning. Challenge and engage all young people are influenced to identify rewarding learning experiences that will inspire in the 21st Century (Perrotta et al., 2013). The use of video games in education is focused the emergence of new trends like 'Game Based Learning' that supports teaching and learning. Game-based learning refers to the use of video games to support teaching and learning (Perrotta et al., 2013). Game environment have influence on the learners to foster their skills. Games and play are an essential part of child development (Prensky, 2005a). Digital Game-Based Learning is exactly about fun and engagement (Prensky, 2002).

Games for Learning

Learning experiences allow players greater freedom in terms of decision-making. Games offer an opportunity to explore new creative uses through the diverse ideas generated by communities of players. Learners gain meta-cognitive skills and group identity that could influence experiences for life through motivating game play (Turcsányi-Szabó et al., 2006). Game is keeping learners motivated (Prensky, 2005b). The main reason that people play games is the process of game playing is engaging.

Principals	Mechanics
<ul style="list-style-type: none"> – Intrinsic Motivation – Enjoyment and fun – Authenticity – Autonomy – Experiential Learning by doing 	<ul style="list-style-type: none"> – Rules: simple and binary – Clear and challenging goals – Fantasy and difficulty – Self-control and feedback – Social element

Table 1: Principals and Mechanics of Learning (Perrotta et al., 2013)

Table 1 shows the principals of learning based on game activity. The principles refer to the underlying assumptions and concepts. The mechanisms refer to processes and dynamics involved in game-based learning are interdependent (Paras and Bizzocchi, 2005). The principals and mechanisms involved in game-based learning are spitted based on the extent that video games can impact overall academic achievement. The majority of the studies examine the impact of video games on student motivation and their school record: programming, math and art subject. Video games allow learners to engage with topics and ideas through interaction and simulation, rather than through the conventional materials and formats of schooling: textbooks, lessons, assignments and so forth (Perrotta et al., 2013). To understand what extent did gaming impact on learning outcomes, we examine the relationships between participant's self-report and academic learning outcomes.

Behaviour Analysis

Behavior is the activities of living organism that everything people do, including how they move, what they say, what they think, or how they feel. The experimental analysis of behavior has discovered a number of basic principles-statements about how behavior works as a function of environmental variable (Cooper et al., 2007). Behavioral assessment involves a variety of methods including direct observations, interviews, checklists, and tests to identify (Cooper et al., 2007). Direct measurement is concerned with measurement of the specific behavior to be taught. For example, direct measurement must provide data on student response to the actual materials used during the instructional setting (Cooper, 1982). Applied behavioral analysis is concerned with the manipulation of environmental stimuli (Cooper, 1982), games create environments where each atomic challenge is stand-alone and is addressed that way by a player. This study focuses on the game environments that foster creative processes by using behavior analysis. Behavioral assessment allows analysis of creativity from a divergent thinking and convergent thinking perspective. The measurement can be used in the identification and development of creative potential (Schaefer, 1969).

Factor Analysis

Factor analysis is one of the most commonly used procedures in the development and evaluation of psychological measures (Floyd and Widaman, 1995). The factor analysis method is used to divide criteria into groups (Tzeng et al., 2007). Factor analysis is particularly useful with multi-item inventories designed to measure behavioral styles, cognitive schema, and other multifaceted constructs of interest to

clinical psychologists (Floyd and Widaman, 1995). Assessing creative potential requires a focus on how and why an individual responds to activities (Kaufman et al., 2011). The behaviors that related to the creative activity must be clearly stated and readily translated into the assessment (Amabile, 1983).

This study used the three main factors. Firstly, the model proposed by Ruscio et al. (Ruscio et al., 1998) to identify task motivation as a measure of involvement in tasks. Behaviors such as set breaking, task pace, exploration, enjoyment, and concentration are identified as the ways in which intrinsic motivation manifests itself within the creative process. Secondly, domain-relevant factors determine the initial set of pathways to search for a solution and the ability to verify an acceptable solution (Amabile, 1983) through assuredness, difficulty and exhibited uncertainty activities within gameplay.

Thirdly, the creative-relevant factors are the component of creative thinking including the ability to break away for standard thinking, approaches, and solutions during problem solving. Individuals can gain experiences from ideas generation that may inform their own strategies for creative thinking processes (Amabile, 1996). Creativity-relevant skills are measured through the specific process factors of concrete focus, concept identification, wide focus and striving (Ruscio et al., 1998). This leads to the following questions to be answered in this study.

Methodology

The proposed methodology is broadly divided into two stages. The first stage involves a game study which adapted from existed a creative potential method (Inchamnan et al., 2012). This creative potential method examines players by using established creativity criteria in order to determine the levels of creative activity. The process focuses on the reliability of the factors used for measurement determining those factors that are more strongly related to creativity. The second stage involves the determination of relationships of game play elements. The objective of this stage is to investigate and establish related elements that support creative performance and learning outcome.

To examine the creative process, participants were video recorded while playing the games and a video coding scheme was used to capture the type and frequency of observable behaviors and participant verbalizations. To assess the game experiences, this study used the 21-item PENS survey that consists of five dimensions: competency, autonomy, relatedness, presence, and intuitive controls. Each item consists of statements on a seven-point scale ranging from 1 to 7. Specifically, the research reported in this paper examines the relationship between creative game play processes and game play experience as measured by the Player Experience of Need Satisfaction (PENS) survey: In game Competence; In game Autonomy; In game Presence; In game Intuitive Control (IC) and In game relatedness.

Study Procedure

To explore the relationships between the uses of creative processes during game play and the player experiences, this study decided to adopt four games, that is, Portal 2, I-Fluid, Gunz 2: The second Duel, and Braid. While these games have different

mechanics, goals and settings, they all require the players to solve problems in the game tasks to keep progress thorough the game play. Evaluation method involved examining in relation of the creative process as measured by task motivation, domain-relevant skills and creativity-relevant skills. Game task behaviors and verbalizations were coded to obtain the empirical indices of the creative processes in which game players were engaged. Participations (n=120) in the study involved were observed during playing the four selected games.

To examine the creative process, participants were video recorded while playing the games. A video coding scheme was used to capture the type and the frequency of the observable behaviors and verbalizations. This coding scheme was implemented based on the measures criteria below that developed for analyzing creative process (Inchamnan et al., 2012).

The results from stage 1 will be used to establish the extent which the games facilitate creativity and how the components of creativity are involved. A video coding scheme will be used to capture the type and the frequency of the observable behaviors and verbalizations in which participants engaged. The coding uses items that are identified as the significance in the creative process (Ruscio et al., 1998) and the coding is performed using both 7-point Likert scales and frequency counts.

According to the timeline and data gathering, the pilot test adopted only 15 students. The unit outcomes of participants during study period were observed in order to evaluate logical skills (Math and Programming subjects) and creative art skills (i.e. Animation Drawing subject). The majority of the studies examine the impact of video games on student's motivation and their school records: programming, math and art subject. Focuses participants group played the game Gun Z 2: The second Duel online between their friends and Bots. In the experiments, gameplay finished in approximately 15 minutes in total and completed a Player Experience Needs Satisfaction (PENS) questionnaire (Przybylski et al., 2012) after playing.

Result: Factor Analysis of Creative Potential Game Activities

The levels of creative problem solving that occur during game play and the determination of the game design elements are necessary to facilitate creative game play. Objects and resources manipulation within the games are a source of behavior variation across all components. Table 4 shows the actual factors that were extracted from all 16 variables. In the table 4, all factors account for 72.51 percent of the variability in all 16 variables.

The pilot testing of items should be performed to ensure that items that designed to measure a common construct are moderately correlated with one another and are correlated with the total scale score. If one item does not satisfy the moderate correlation constraint (e.g., $r \geq .20$) to other items in the construction process, that item tend to perform poorly in a factor analysis. Kaiser-Meyer $> .5$ (.789, n=120) is acceptable confident to use this data for factor analysis technique.

Factor	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	6.231	38.947	38.947
2	2.470	15.439	54.386
3	1.618	10.110	64.495
4	1.282	8.012	72.508

Table 4: Behavioral factor Total Variance Explained

According to the table 4, Factor 1 accounts for 38.95% of the variability value of all 16 variables. Ten variables that are loaded strongly on this factor are Involvement (Task), Set breaking (Task), Pace (Task), Planning (Task), Playfulness (Task), Exploration (Task), Enjoyment(Task), Concentration (Task), Assuredness (Domain), Difficulty (Domain) and Wide focus (Creative).

Results: Strong Factor Component

Component Matrix ^a				
Creative Component	Factor			
	1	2	3	4
Involvement (Task)	.753	-.257		-.131
Stability (Task)	.232	.705	.314	
Set breaking (Task)	.863			
Pace (Task)	.787	-.246		
Planning (Task)	.888	.149		.127
Playfulness (Task)	.830	.361	-.111	
Exploration (Task)	.843	.317		.111
Enjoyment (Task)	.804	.384		
Concentration (Task)	.790		.118	
Exhibited uncertainty (Domain)		.605	.569	
Assuredness(Domain)	.748	-.506		.185
Difficulty(Domain)	.298	-.461	.574	-.157
Wide focus(Creative)	.329		-.556	-.321
Striving(Creative)	-.257	.834		-.215
Concrete focus(Creative)		.131	-.328	.860
Concept identification(Creative)	.248	.295	-.515	-.328

Table 5: Components Matrix of Creative Components

This issue regarding to measured variables concerns the scale on which scores fall. Factor 1 finding refers to the player can work on solving the problem (Involvement game activity). The game play provides players to manipulate materials; uses or attaches them in new combinations (Set breaking game activity). Speed during play game at which the participant works on tasks/challenges (Pace game activity) allows players to organize material; establishes an idea, order to build in (Planning game

activity). Playfulness (Playfulness game activity) activities engage the player in tasks in the curious manner; trying out ideas in a carefree way and exploration (Exploration game activity) as curious, or playful testing out of ideas. The enjoyment (Enjoyment game activity) refers to the player has a good time experience, finding pleasure in the task / challenge and focusing on the task; not distracted (Concentration game activity). The task motivation game activities relates to the learning domain-relevant skills during play game.

The results in the domain-relevant skills categories might be expected. Players are confidence: certainty of ability to complete task; assuredness in going about the task; not doubtful, timid, or anxious (Assuredness game activity). Player faces the problems within the game activities and reflexes the game tasks by making a negative statement (Difficulty game activity). The creative-relevant skill has a relationship between the effect of intrinsic motivation and domain-relevant skill required in game play activities. The creative-relevant skill allows the player to have a future oriented; restatement of problem given, self-imposed goal, and statement dealing with a desired final goal (Wide focus).

Results: Player experiences have an influence on people's creative process skills.

The significant mean differences of PENS scores (Player experience) across creative components shown in Table 6 point out that players felt competence during involvement in the game. The autonomy scale assesses the degree to which participants felt free, and perceived opportunities to do activities that interest them with striving. In game relatedness, the scale assesses the desire to connect with the others in a way that feels authentic and supportive.

These results show significant ($\alpha < .05$) player experiences that are significant to the concept identification within the game play. The intuitive control scale aims to assess the degree which participants control their character's actions in the game environment. These results show significant ($\alpha < .05$) player experiences that were significant to the concept identification and striving within the game play activities. These findings show that player experiences have an influence on people's creative process skills.

ANOVA Between Group	Df.	F	Sig.
Involvement and Competence	9	7.698	.018
Striving and Autonomy	9	5.301	.040
Concept identification and Relatedness	7	5.003	.025
Striving and Intuitive Control	10	6.587	.042
Concept identification and Intuitive Control	10	6.305	.045

Table 6: The significant mean differences of PENS scores across creative components

Results: Game activities encourage people to learn more effectively.

The significant mean differences of school record scores across creative components shown in Table 7 point out that players faced speed at the particular task which play a slow to fast gradient of task rate. The logical skills as programming subjects related how students organize game elements; establishes an idea, order to build in, and steps to take with in game activities.

ANOVA Between Group	Df.	F	Sig.
Programming and Pace	5	4.104	.032
Programming and Planning	4	5.649	.012
Art and Concept Identification	8	4.406	.044

Table 7: The significant mean differences of school record and creative components

These results show significant ($\alpha < .05$) the relationships between Art subject and creative-relevant skill as concept identification within the game play activities. These findings show that game activities encourage people to learn more effectively.

Results: Game activities facilitate the creative process during the game play experiences.

The finding identifies (in Table 8) a significant ($\alpha < .05$) player experience of playing game that were significantly with involvement (Task motivation), Exhibited uncertainly (Domain-relevant skill) and Concept identification (Creative-relevant skill) within the game play. The programming and mathematics results aim to assess the degree that a player has a logical thinking of learning. These results show a significant ($\alpha < .05$) player learning that was significantly with exploration, wide focus, and concept identification within the game play.

ANOVA Between Group	Df.	F	Sig.
Involvement and Year of Game Experience	3	8.103	.004
Exploration and Programming	5	7.784	.004
Exhibited uncertainly and Year of Game Experience	3	5.721	.013
Concept identification and Year of Game Experience	3	14.707	.000
Wide focus and Math	4	6.424	.008
Concept identification and Programming	5	9.068	.003

Table 8: The significant mean differences of PENS scores across creative components

Results: Creative Potential and Learning Outcome

The creative-relevant skill encourages learning activity through the degree to which player has a logical thinking of learning (Involvement, Concept identification and Year of Game Experience). It appears that the ideal conditions for creativity are achieved within self-initiated backtracks by using intentionally moves to previous locations or revisits a particular game task/ challenge (Exhibited uncertainly and Year of Game Experience).

ANOVA Between Group	Df.	F	Sig.
GPA and Competence	9	8.361	.015
GPA and Intuitive Control	10	5.977	.050

Table 9: The significant mean differences of PENS scores across creative components

Table 9 shows the significant difference of learning outcome (GPA) within players' feeling competence and intuitive control during play games. These findings refer to game activities can facilitate individual's learning outcomes by using the creative process skills.

Guidelines for Digital Game Based Learning

As aforementioned, the guidelines presented herein are used to assist game developers to produce games that facilitate creative problem solving. In the guideline, firstly, learning outcomes have to be mapped to the mechanisms of learning that are identified for facilitating creative potential. These conceptual guidelines are shown in the figure 4 as an overview of the Creative Potential of Learning Model (CPLN). In the figure, one can see that all principle concepts are linked into the circular module. In order to clearly understand the interrelationships between principles of learning and creative potential, the interpretation of the results is indispensable. A game's ability to facilitate task motivation centers on the creating an environment that instils confidence to complete tasks and ensures that players have a logical skill to exploration their experiences.

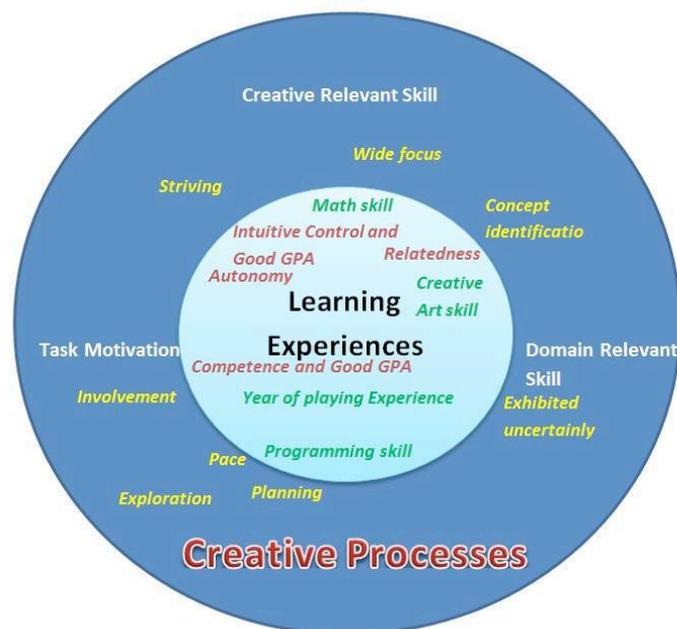


Figure 1 The Creative Potential of Learning Principles Model (CPLN).

From a creativity-relevant skills perspective included providing greater opportunities for players to take a striving while engaging in gameplay. This can be achieved by allowing activity that is the learning mechanisms (Striving and Autonomy; Striving and Intuitive Control). The results refer to the game activity experiences as intuitive control affects the learning outcome.

This can also may be achieved by allowing activity that is the future-oriented, to let players work through the problems that require facilitating interactions with others, and require feeling of intuitive control (Concept identification and Relatedness; Concept identification and Intuitive Control). The creative-relevant skills encourages learning activity through the degree to which player has a logical thought of learning (Concept identification and Creative Art skill; Wide focus and Math; Concept identification and Programming)

The tension parameter has been identified between providing an experience that encourages striving (creativity-relevant skills) and producing gameplay where the player finds it straight-forward to understand what they are required to do and how they might go about doing it (domain-relevant skills). In identifying process, it appears that the ideal conditions for creativity are achieved within self-initiated backtracks by using intentionally moves to previous locations or revisits a particular game task/challenge (Exhibited uncertainly and Year of Game Experience).

Task motivation activities results found that the game challenges effectively allowed for cognitive and logical thinking and strategic planning. There were multiple types of challenges available that players could approach in their own way and at players' own pace, the level of challenge was well matched to player skill level.

The subsequent step of the producing guideline is to map the game activity components to the mechanisms identified(Inchamnan et al., 2014), and learning skills

in Figure 3. These guidelines are outlined below, notice that the creative component facilitated included in brackets.

- Ensure that the class includes clearly goals that allow students to develop their own sub-goals and problem solving skills (Wide focus, Math skill).
- Create challenges in the class that require logical thinking involvement and strategic planning in the class (complexity in problem solving, planning, refining problem solutions)
- Implement challenges that develop at an appropriate pace and match a student's skill level (facilitate striving activity, environments that instill feeling Autonomy)
- Implement rules that offer freedom of choices, where students have the options about what actions to use to solve a problem in the class lesson (wide focus, object use and manipulation, planning)
- Manage student errors by allowing supports for the recovery from errors, and by ensuring that the impact is minimal (facilitate striving activity, environments that instill confidence)
- Allow students to receive immediate and continuous feedback on their actions (environments that instill competence, understand what is required, clear pathways to complete lesson)

Conclusion

This study examines the activity of game potential for helping people to learn more effectively. The study maps the results of the analysis of players engaging in creative problem solving during on line game play. The analysed data have been used to gain better understanding of how in-game activities influence a player's engagement in creative activity and learning. Furthermore, this study developed preliminary guidelines are proposed. The guidelines consider the specific ways that game developer can align learning mechanisms to support creative problem solving processes. The lesson activities should provide the involvement, exploration and planning during study. The class should be engaged the problem solving skills of striving, wide focus, concept identification and exhibited uncertainly.

Future works will investigate the applicability of the Creative Potential of Learning Model to other different game genres. Furthermore, the guidelines proposed will be applied and evaluated in the game development to support creative activity for educational purposes. Finally, the future work will focus on larger samples in order to find the factor analysis of how the game have potential to help people to learn more effectively in terms of creative processes.

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Constructing and Validating Behavioral Components Scale of Motivational Goals in Mathematics

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Abstract

This study aimed to construct and to validate the behavioral components of students' motivational goals as contextualized in Mathematics. The factors of motivational goals were based on Dowson and McInerney's framework composed of mastery, performance, work avoidance, social affiliation, social approval, social responsibility, social status, and social concern. The reliability of the scale was analyzed using Cronbach's Alpha. The Cronbach's Alpha reliability coefficients of the eight motivational factors are 0.82, 0.73, 0.75, 0.83, 0.84, 0.88, 0.79, and 0.89 respectively. To assess the validity of the scale, its items were subjected to exploratory factor analysis. EFA result shows that the eight factors of behavioral motivation was reduced to six factors.

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Introduction

The Philippine education performance in Mathematics is far below the international average as revealed in the 2011 Global Competitiveness Report of the World Economic Forum under the area of Education, where it ranked 112th in Science and Mathematics among 138 economies, while, in the 2003 Trends in International Mathematics and Science Study, it ranked 43rd out of 47 participating countries. Recent studies emphasized the relationship between motivation and learning Mathematics. Walter and Hart (2009) said that “student motivation has long been a concern of Mathematics educators.” In the research of Pantziara and Philippou (2014) they pointed out that “enhancing students’ motivation in the Mathematics classroom is an important issue for teachers and researchers, due to its relation to students’ behavior and achievement.”

Dowson and McInerney defined the behavioral components of students’ goals as “a range of concrete actions associated with each goal” (2003, p. 100).

They identified eight behavioral factors in the motivational goals of students namely: (a) mastery - a variety of behaviours implicating initiative, challenge-seeking, self-regulation, and effective effort management, (b) performance - a variety of behaviours particularly relating to the measurement of academic performance relative to others or attempts to maximise academic grades and marks relative to others, (c) work avoidance - a variety of behaviours designed to minimise engagement, or effort, in, particularly, demanding academic work, (d) social affiliation - a variety of affiliative academic behaviours; particularly working together with other students in productive or cooperative ways, (e) social approval - a variety of academic behaviours designed to please, or at least attract the attention of, significant others (particularly parents or teachers), (f) social responsibility - a variety of behaviours involved with participation in supportive classroom/school roles, or increased academic effort due to perceived role expectations, (g) social status – a variety of academic behaviours (particularly effort management), which are designed to promote students present, or future status, (h) social concern – a variety of behaviours designed so that students may be, at least potentially, involved in helping situations or appointed to helping roles. (Dowson & McInerney, 2003, p. 101)

The study of Dowson and McInerney attempted to construct an inductive, systematic, and contextual approach to the study of students’ motivational goals. However, they stopped at identifying the eight factors in the motivational goals of students. In order to expound further for the eight factors in motivational goals, quantitative data are needed to support it. The theory is domain, general and qualitative; it needs a more empirical quantitative study. Their theory on motivational goals is general, not subject specific.

With the gap found out by the researchers, this study aimed to (a) construct a test that will measure the behavioral components of students’ motivational goals in Mathematics, (b) validate the constructed test that will measure the behavioral components of students’ motivational goals in Mathematics, and (c) measure the reliability of the validated test on Behavioral Components Scale of Motivational Goals in Mathematics.

Participants

The study consists of first year college students from a private university in Manila, Philippines, in which 270 of them are Pharmacy students and 300 are Medical Technology majors. The Pharmacy students voluntarily took part in answering the Behavioural Components of Students Motivational Goals in Mathematics (Dawson & McInerney 2003), and the Medical Technology majors, also voluntarily participated by answering the constructed scale that was based from the survey result.

Since the participation was voluntary, the researchers used the convenience sampling technique. The consent from the respective professors of the participants was sought before administering the instruments. The available and willing participants were the only ones who answered the survey and the scale test. The researchers facilitated the instruments to the participants to ensure accuracy on administering the instruments and on achieving their desired objectives.

Instruments

This study used two instruments: the first instrument was the Behavioural Components of Students' Motivational Goals (Mathematics) Survey anchored on the theory of Dowson and McInerney (2003). The survey forms were used to collect data on students' behavioral components of motivational goals. It includes two sections namely the academic goals and social goals. The academic goals section asks students to write on what motivated them most to study mathematics in terms of their mastery, performance, and work avoidance; while, the social goals sections asks the same in terms of their social affiliation, social approval, social status, social responsibility, and social concern.

Based on the data collected from the survey, the researchers came up with the initial draft of the Behavioural Components of Students' Motivational Goals (Mathematics) Scale. This is a scale that lists the ten most frequent behavioral motivations of students as reflected on the survey result. The scale has two sections: (a) academic goals- mastery, performance and work avoidance; and (b) social goals- social affiliation, social approval, social status, social responsibility, and social concern. This instrument prompts students to rate themselves on a 5-point Likert scale (5-always, 4-often, 3-sometimes, 2-rarely, 1-never) on their academic and social motivational goals behavioral components. This instrument was the basis for constructing the final Behavioural Components of Students' Motivational Goals (MATH) Scale.

Procedures

Adaptation and Administration of the Survey

Using Dowson and McInerney's theory on motivation (2003), the researchers made an adaptation of their concepts on individual goals and goal categories. A survey questionnaire was crafted consisting of the academic goals and social goals with the corresponding specific goals under each. The survey questionnaire elicits from the student respondents (pharmacy students) their best motivation in achieving each goal listed. After writing the survey questionnaire, the researchers subjected it for a peer review to insure its readability since the definitions used were quoted from the study

of Dawson and McInerney (p. 100). The comments of trained editors were acknowledged and the recommended revisions were done, after which, the final copy was produced.

Upon request from the mathematics professors of the student respondents, the survey was administered by the researchers. They explained in detail to the respondents how the survey be answered and to what purpose the survey serves. The responses were tabulated and analyzed by the researchers. Based on the result, only the 10 most frequent answers on each goal were taken and were included in the construction of the scale- the Behavioural Components of Students' Motivational Goals (MATH) Scale.

Construction and Administration of the Scale

Following the framework of Dowson and McInerney (2003), the students' individual motivational goals were consolidated based on careful analyses of their responses. Considering the context of these, similar answers were collated and the ten (10) most frequent answers were included in the scale. These were included in the construction of the scale. Before the scale was administered to the medical technology students, it was subjected to specialists' review to establish its readability and form. Taking the specialists' feedbacks, the researchers did the necessary revisions.

The researchers requested the Mathematics professors of the respondents for the administration of the scale. The researchers facilitated the administration to clearly explain the answering procedure as well as the objectives of the test. This was also to allow clarifications and questions from the respondents while they were taking it.

The data gathered were treated statistically using Cronbach's Alpha and Exploratory Factor Analysis to establish the reliability and validity of the scale.

Results and Discussion

In order to establish the internal consistency reliability of the items in the scale, the researchers used the Chronbach's Alpha reliability coefficient test to analyze the data. This item analysis technique helped them determine how well the items in each behavioral motivational factor measure the intended behavior. They followed the proposed rule of thumb interpretation of George and Mallery (2003) where “ $\alpha > .9$ – Excellent, $\alpha > .8$ – Good, $\alpha > .7$ – Acceptable, $\alpha > .6$ – Questionable, $\alpha > .5$ – Poor, and $\alpha < .5$ – Unacceptable” (Gliem & Gliem, 2003).

The initial analysis showed that the eight factors in motivational goals have the following Chronbach's Alpha coefficient: mastery (0.815), performance (0.728), work avoidance (0.752), social affiliation (0.831), social approval (0.837), social status (0.786), social responsibility (0.882), and social concern (0.885). This reflects that the over-all internal consistency of each factor considering the 10 items included in each of them is either acceptable (performance, work avoidance, social status) or good (mastery, social affiliation, social approval, social responsibility, social concern) based on George and Mallery (Gliem & Gliem, 2003). However, although, the statistical analysis showed a generally accepted statistical value, Gliem and Gliem also emphasized that the Chronbach's alpha can be improved depending on the number of items in the scale (2003). The researchers believed that the 10 items can be lowered further specially if the statistical analysis suggests a significant value that

calls for this action. Looking at the statistical results, they found out several items having average (0.2- > 0.4) inter-item correlations.

The inter-item correlation value describes the correlation of a single item in reference to the other items within a factor (Gliem & Gliem, 2003). In here, it refers to the correlation of one item to the other 9 items in one component factor. Taking into consideration only the items that would help improve the Chrobach's alpha reliability coefficient if deleted, the following coefficients and inter-item reliability correlation values, respectively, had been recorded: mastery (item5: 0.821; 0.365), performance (item4: 0.731; 0.258), work avoidance (item9: 0.762; 0.221), social affiliation (item7: 0.837; 0.295), social approval (item8: 0.840;0.354), social status (item9: 0.787; 0.313), social responsibility (none), and social concern (item1: 0.887; 0.392).

When Cronbach's Alpha coefficient is closer to 1.0, the greater is the internal consistency of the items in the scale, and taking into account that a Cronbach's alpha coefficient value of 0.80 is a reasonable goal (p. 87), however, deleting any of the items mentioned does not contribute significantly to the reliability of the factor. Also, when the inter-item correlation values are to be considered, these items have met the least value of 0.2-0.3 for inter-item correlation (Tang & Cui, 2003).

To support this claim of retaining the items, it can be attributed to the fact that mastery (item 5), social approval (item 8), and social concern (item 1) have a higher inter-item correlations versus the minimum range (0.2 – 0.3) prescribed by Tang and Cui (2003). Also, their Cronbach's Alpha coefficient is of good value ($\alpha > 0.8$) as to George and Mallery (2003) . Social affiliation on the other hand, also met a Cronbach's Alpha (0.837) value higher than what is acceptable and deleting item 8 does not contribute much on the factor reliability, having it increased only to 0.840, while its inter-item correlation falls on the suggested minimum range.

In the case of social status, the only item that can be deleted is item 9 which in fact has a relatively high inter-item correlation (0.313) higher than the suggested minimum value, and its Cronbach's Alpha coefficient (0.786) lies on the acceptable level. Performance and work avoidance having an acceptable Cronbach's Alpha coefficient (0.728 and 0.752) do not also contribute significantly even if item 4 (performance) and item 9 (work avoidance) be deleted, for doing so only results to a minimal difference of 0.731 and 0.762 respectively. Moreover, their inter-item correlation values (0.258 and 0.221) lie on the minimum, thus the researchers opted to retain these items.

On the other hand, the construct validity of the scale was determined through exploratory factor analysis (EFA) using SPSS. The initial scale included eight factors which are mastery, performance, work avoidance, social affiliation, social approval, social responsibility, social status, and social concern. Each factor had ten items.

Prior to the extraction of the factors, the suitability of the respondent data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, and Bartlett's Test of Sphericity. The result shows that the KMO of the sample is 0.70 which is higher than the minimum requirement of Kaiser (as cited in Field, 2013) which is 0.5, while Bartlett's Test of Sphericity is significant ($p < 0.001$), suggesting that the data from the participants' responses are suitable for factor

analysis. The correlation matrix of the data was then analysed using principal component analysis. Using the Guttman-Kaiser criterion (eigen values > 1.0), eight factors were identified from the EFA, but the scree plot suggested six factors only. It is concluded that the six-factor solution which accounted for 45% of the variance in the data provided the optimal solution because: (a) it was consistent with the scree plot, (b) it had the least number of items with weak factor loading or cross-loading (factor 1 loading 13 items, factor 2 loading 11 items, factor 3 loading 5 items, factor 4 loading 8 items, factor 5 loading 9 items, and factor 6 loading 9 items with the total of 55 items). In terms of the factor loadings, only items with loading of at least 0.40 in one factor and not more than 0.35 in another factor were considered.

Conclusion and Recommendations

The results of the study reveal that Dowson and McInerney's eight behavioral components of students' motivational goals was adjusted into six factors because of the following reasons: (a) the scree plot suggested six factors, and (b) some factors merged based on the outcome of factor loading and cross-loading.

Thus, this study is considered only as the preliminary phase in constructing and validating behavioural component scale of motivational goals in Mathematics. To further this study, the six-factor components will be used where another set of test administration must be conducted with a larger number of participants in order meet the sufficient data needed for Confirmatory Factor Analysis (EFA) which will measure the goodness of fit of the items. Such undertaking will lead to the standardisation of the scale.

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Academic Success and Emotional Competence in the Higher Education Nursing Students

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Abstract

To analyse the influences of emotional competence in academic performance of higher education nursing students. Emotional intelligence has an increasingly important role not only in people's well-being but also as a fundamental factor in personal, professional and social development and success.

Method: The data collection was carried out in September 2014, with a sample of 119 students and the type of study is characterized as a quantitative non-experimental, descriptive-correlational study of cross-section. For the collection of data we used socio demographic, academic results and an emotional competence questionnaire adapted to the Portuguese context by Lima Santos & Faria (2001). After data collection, its analysis proceeded to the SPSS program, version 19.0 for Windows.

Results: The emotional perception factor is statistically higher on the students under the age of 25, with low socio-economic income and those who live in rural areas. Globally, the ability to deal with emotions is the factor that has more influence on academic success.

Conclusion: The relationship between academic performance and emotional competence highlights the ability to deal with emotions. The results found in this study calls for a reflection on the implementation of strategies to develop in nursing students, and their emotional competence, taking into account their economic context.

Keywords: emotional competences, nursing education, social development

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Introduction

Specialized literature has dedicated and highlighted the role of appropriate self-concept and emotional competence in the well-being and psychosocial adjustment of individuals, most particularly in youths. In addition to the scientific knowledge, the development of other skills is ever more privileged, particularly that of emotional intelligence.

Academic performance is an area of concern to all those involved in the training process. The idea of academic success is closely linked to student performance. Those who achieve the norms of academic excellence and progress in the course are those who have a good academic performance taking overall into account, grades and acquisition of skills.

There are many factors that can help academic performance, such as, the school, the teacher and teaching methods, the organization of activities, socio-economic and family background, and the cognitive and non-cognitive factors of the student. In this context and inserted into personal variables, the emotional component is included (Benson et al., 2010). Sakolofske et al. (2011) adds that emotional intelligence brings together a number of significant capabilities to the success and well-being of people, giving it particular emphasis compared to those of intellectual, logic-mathematical and linguistic capabilities.

Assuming that there is a relationship between emotions and thought, we have to stress the importance of this construct in different life circumstances of individuals, namely at home and at school, contributing to a better development of social and job skills, still managing more adaptive and effective behaviour (Lima Santos & Faria, 2005). Thus resulting in different conceptualizations and explanatory models of emotional intelligence highlighting, mainly two models: capability models, in which emotional intelligence is defined as a set of capabilities or cognitive entities that allow emotional functioning (Mayer & Salovey, 1997) and mixed models which, in turn, comprise a wide range of personality characteristics (Barrett, 2011; Goleman, 2006).

According to this authors emotional intelligence comprises a range of skills which includes perception and emotional expression, the emotional facilitation of thought, emotional regulation and understanding. Moreover, since emotional intelligence has similar characteristics to other types of intelligence, it should reflect a type of ability or capability being related to other capabilities and developing with age and with experience (Mayer et al., 2004).

Some authors consider that the mixed models are relevant as they recognize that emotion is affected by multiple aspects of personality, such as optimism and motivation (Goldenberg et al., 2006). However, this type of model does not present a new conceptualization of emotional functioning, regarding the concept of emotion or of intelligence (Matthews et al., 2004), limiting its use.

With this in mind, this study followed the model of Mayer and Salovey (1997) organizing skills in four main areas: i) perception, evaluation and emotional expression; ii) emotion as a thought facilitator; iii) understanding and analyzing emotions and the use of emotional knowledge (understanding emotions); iv)

regulation of emotions as a way of promoting emotional and intellectual growth (managing emotions). According to these authors there is a hierarchical organization within each component, according to the complexity of psychological processes involved, and it is expected that more emotionally intelligent individuals have a faster progress through the more complex capabilities. The higher components concern conscience and emotional regulation, whereas the lower components correspond to more simple capabilities, such as understanding and expressing emotions.

The “understanding emotions” component relates to the capability or judgement that an individual recognizes emotions in themselves and in others. It also includes the individual’s ability to express feelings and underlying needs as well as assessing the expression of their emotions. It involves the perception of emotional cues in facial expressions, in tone of voice, and in artistic expressions. This component considers that emotions are a kind of mode of transport of important information in social relationships.

In turn, the component “facilitation of thought” reveals, at what level the thoughts and other cognitive functions of individuals are influenced by their emotional experiences. It refers to the use of emotions as a way to facilitate thought and action, so that they cover the assimilation of basic emotional experiences in their mental life, creating a field where afterwards memory would act. It takes into consideration the fact that the individuals may summon emotions in order to improve their action and interaction dynamics, as well as cognitive processes. The third component, “understanding emotions” refers to the capability of labelling emotions, of recognizing the existence of differences between emotions, as well as understanding the possibility of complex feelings.

It assumes that emotions develop according to a set of predictable patterns that are linked to the development towards complex social situations. In this area, it is important to acquire the skills that appear to be essential in the proper solution of social problems. Finally, the fourth component, “managing emotions”, focuses on the importance of using emotions, rather than repressing them or “acting without thinking”, as these have the advantage of helping to make correct decisions. It therefore refers to the capability (ego manipulation) of regulating emotions in themselves and in others, thus the most relevant component having also a higher level in the established hierarchy in the mental facilitation model. It presupposes the existence of a chance to put into action the emotional knowledge in order to solve problems more effectively, adequately and satisfactory, being inherent to this process, a progressive understanding of emotions in oneself, in others and in relationships between oneself and others.

From the analysis of components, it appears that emotional intelligence is simultaneously intrapersonal and interpersonal. Intrapersonal in relation to oneself, or be it, the way it recognizes and processes emotional information, as well as the degree to which it affects thoughts and behaviour. Interpersonal, when it refers to the interactions between individuals, the perception of emotions in others, and the management of emotions of others in social interaction (Joseph & Newman, 2010).

So this study aimed to analyze the emotional skills of students in the undergraduate nursing degree and its relationship to socio-demographic characteristics and academic performance.

Method

A cross sectional study took place in September 2014, with a sample of 119 students. The following inclusion criteria were applied: (a) to be enrolled in the higher education nursing school of Dr. José Timóteo Montalvão Machado in Chaves-Portugal, (b) to be above 18 years of age, and (c) must be able to answer the questions. The principles of the Helsinki Declaration were taken into account, namely, the non-exploitation of participants, equality and fair treatment, a fair selection of the population in study, beneficence, non-malice, autonomy of individuals, respect for their values, and a favorable risk-benefit relation. All of these assumptions have been secured in the form of free and informed consent.

After obtaining authorization for the use of the questionnaire, we proceeded to its implementation in which the sample consisted of 119 eligible students, 33 of which in the first clinical practices and 86 on the final level of the degree, that fully completed the questionnaire. Academic performance was evaluated by the grades obtained in the 3 previous assessments, in a scale of 0 to 20. The *Emotional Skills and Competence Questionnaire* was adapted to the Portuguese context by Lima Santos & Faria (2005), where there was an alpha value of 0.84 for an $n = 347$. It is characterized by being a self-report measure used in an academic and job context. It is based on the model of Mayer and Salovey (1997), consisting of 45 items according to a Likert scale of 6 points. It assess emotional skills and self-concept in 3 dimensions of emotional competence: Emotional Perception (EP) (15 items), Emotional Expression (EE) (14 items) and Ability to cope with emotions (ACE) (16 items).

After the data-collection, we proceeded to their analysis, with the statistical software used for the analysis and processing of data, the “Statistical Package for Social Sciences” (SPSS) version 19 for Windows (SPSS Inc., Chicago, Illinois, EE.UU.). It included the descriptive analysis of the variables for gender, age, and place of residence; and the descriptive analysis for the dimensions of the emotional competence questionnaire and academic results. The level of significance for all analysis was set at 0.05.

Results

In general, this sample of 119 students of the nursing degree are female, having 26 years of age, and it was basically characterized by subjects who were single and living with parents. The majority, were exclusively students, having an income lower than 500 euros.

Table 1. Sample characterization (%)

	2 nd year (n=)	4 th year (n=86)
Sex:		
female	69.7	70.6
male	27.3	29.4
Age (mean)		
	26.0±7.6	26.3±7.5
Marital status:		
single	78.8	85.5
married	12.1	10.8
divorced	0	1.2
widowed	6.1	2.4
Family life:		
alone	9.1	7.0
parents	60.6	65.1
friends	15.2	9.3
partner	15.2	14.4
Professional situation:		
student	87.9	98.7
unemployed	3.0	1.3
self-employed	0	4.7
worker-employed	27.3	26.7
Income:		
less than 500€	44.4	15.2
500-1000€	22.1	30.3
more than 1000€	16.3	21.2

In the comparison of emotional competence and academic results (table 2), we can observe that the ability to deal with emotions is significantly higher on the final year of degree students.

Table 2. Comparison of emotional competence and academic results

	Before CP 2 nd year students	After CP 2 nd year students	4 th year students
Emotional perception (EP)	45.0±3.3	45.5±4.9	45.5±3.9
Emotional expression (EE)	44.1±5.4	46.5±3.5	44.1±5.5
Ability to cope with emotions (ACE)	43.5±3.4*	43.2±4.5	46.2±2.9*
Academic results	15.4±3.1	16.1±4.2	14.6±3.3

* p value MW test =0.05

The emotional perception factor is statistically higher on the students under the age of 25, with low socio-economical income, and on those who live in rural areas (table 3). Globally, the ability to deal with emotions is the factor that has more influence on academic success.

Table 3. Analysis of the emotional competence dimensions (%)

	ACE	EE	EP
Gender			
Male	40.27	36.37	38.37
Female	33.86	38.45	33.82
p value MW test	0.256	0.700	0.399
Reidencial area			
Rural	43.10	39.55	48.48
Urban	36.38	35.90	32.05
p value MW test	0.216	0.500	0.002
Age			
Less than 25	39.71	38.15	43.07
More than 25	37.69	36.37	27.80
p value MW test	0.704	0.732	0.003
Income			
Less than 500€	36.71	37.55	46.63
More than 500€	40.90	37.46	30.55
p value MW test	0.412	0.987	0.001
Academic results - grade			
Less than 14	45.53	37.51	41.55
More than 14.1	28.35	39.36	38.23
	0.049	0.115	0.201

Discussion

Emotional intelligence has come to occupy exponentially an important role not only in the well-being of people, but also as a key factor in personal, professional, social, and academic success as was proposed to be analyzed in the present study (Blackwell et al., 2007). This construct undergoes a multi-factorial arrangement of emotional, personal and cognitive competences that influence individual capabilities to deal

actively and effectively with the pressures and demands of the environment (Monteiro, 2009).

In this sample it appears that most students do not work and have low monthly incomes, as well as living with their parents. In general, the academic achievements of the 2nd year students are higher, which seems to be related to the fact that the level of demand increases significantly throughout the course. Mayer and Salovey (1997) say that they result from the intersection between two fundamental constituents of personality, precisely, from the cognitive system and the emotional system, where intellectual standards arrogate to cognitive performance, as the patterns of adapting to emotional reactions. For these authors, people tend to develop internal models that include emotional functioning standards, which may be evaluated according to their logical consistency and also the associated intellectual capacities.

We gather from different works in social studies and humanities, that the person experiencing positive emotions, mobilizes a guiding motivational energy towards attention and learning, as opposed to the power of negative emotions, inhibiting attention and relation, establishing feelings of frustration and poor involvement, inducing mood frameworks that are facilitators of depression and anxiety (Goleman, 2006; Benson et al., 2010).

In the results analysis of the emotional competence questionnaire, statistically significant differences confirm that students attending the 4th year have a greater ability to deal with emotions when compared to 2nd year students. This appears to be associated to the higher amount of experiences acquired through the maturity of students, particularly in the context of clinical studies, which corroborates the results obtained by Silva (2011), even though our students had slightly lower results, which deserves our special attention, given the fact that they are preparing to be future professionals in health.

Centred on the entry of youths into higher education, this is understood as a personal challenge, through the range of changes that is involved, namely: the environment, leaving home, separation from family and peers, the confrontation with the unknown, and the sudden need for autonomy and the ability for decision making (Shan & Thingujam, 2008). Personal changes such as the transition to adulthood, the adoption of new routines, the demands of university education, the expectance that students show greater autonomy in the learning process, time management, the formulation of objectives and goals be met (Matheny et al., 2008). This student population is characterized by exposure to stressful situations, requiring an adjustment in emotional management, and relying on coping strategies.

In the emotional perception dimension statistically significant differences are observed regarding the residential area, in which students living in a rural environment show superior mean values (48.48 versus 32.05). In contrast to the study of Silva (2011), the individuals that reside in an urban environment show superior mean values in all the dimensions of the scale. In turn, this dimension (emotional perception) is significantly inferior in students with more than 25 years of age (27.80 versus 43.07), which justifies with the fact that they are worker-students, with more obligations and duties beyond the professional including family and social, as described by Silva (2011) and Cardoso (2011).

According to Saklofske et al. (2011), the emotional regulation, as students adapt, is an essential constituent in the adaptive process, helping to deal effectively with stress agents in the academic environment. The students that are unable to regulate and recognize the emotional states in themselves, or do not learn to do so, become their hostages, showing feelings of unease, helplessness and of exclusion (Cardoso, 2011). Regarding the relationship between this dimension and the monthly incomes, statistically significant differences are observed, where students with lower incomes have better results in emotional perception (46.63 versus 30.55), in a way because they seek and have greater support from parents, also because this corresponds to the younger students.

In the analysis of academic results, it appears that students with average grades below that of 14, this being a differentiating value, show better ability in dealing with emotions (45.53 versus 28.35), which seems to be related with more dedication to the relationship aspects rather than academic. Joseph & Newman (2010) state that academic results have a directly proportional relationship with those of emotional intelligence.

Reference is made to some methodological limitations that may interfere in some way on the results obtained, namely the reduced sample size, this being a school located in a predominantly rural region, comprising of students from different backgrounds and nationalities (Portuguese and Spanish).

Conclusion

According to the available literature, the development of personal skills, such as emotional intelligence can contribute significantly to the success and well-being of people, especially students. According to our results it is observed that the ability to deal with emotions is significantly higher in students in their last year of the degree. The emotional perception dimension is higher in students under the age of 25, with low socio-economic income and living in rural areas.

These results invite us to reflect on the implementation of strategies to develop the emotional skills in nursing students, given their economic context and age. We understand the need to develop more research to deepen the understanding of emotional competence that influences academic performance and the success of nursing students.

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Students' Perception on Using Movies in Medical Education

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Abstract

Using movies can be an effective way to stimulate rich discussion about professional and personal development. Reflection on the actions of a character in a movie can assist students to understand behaviors, motivations and life choices far beyond their own view and develop empathetic awareness of the experiences and different realities of others. The aim of this study is to determine whether movies can assist the students in developing personal and professional attitudes. First year medical students (n=206) from three universities in Malaysia participated in this study. An audit form was completed after the screening of the movie during the personal and professional development module session. Scoring was based on Likert-type scale for students' perception measurement. More than 90% of students from all three universities agreed that movies were relevant to medicine, helpful in thinking about a doctor's behavior, enjoyable, useful for future endeavors, and the session was well facilitated. All students from MARA University of Technology agreed that movies and post-movie discussion were useful for learning purposes, and scenario was acceptable. In MAHSA University and National Defence University of Malaysia, the majority agreed that movies and discussions were useful (89.6% and 82.6% respectively), and found scenario acceptable (83.5% and 84.9%). Medical students felt that movies enhanced their learning related to personal and professional development and could motivate the applicability of medical education concepts.

Keywords: students' perception, movies, medical education

Introduction

Nowadays, medical students do not have to skip their lectures if they want to watch a movie. The innovative teaching method of using movies has received a consistent level of interest from medical students and professionals. The students perceive movies as one of the components of their learning process. Alexander, Hall, and Pettis (1994) have mentioned the use of cinema in teaching psychosocial aspects in medicine and termed it as “cinemeducation”. The number of published papers about this subject has increased in the last decade (Alis & Nazan, 2014; Darbyshire & Baker, 2012; Rosenthal et al, 2011). Short video clips help stimulating rich discussions with medical learners, especially with the first year undergraduate medical students who often have limited personal life experience, so that they find observing the life of a character in movies helpful (Midmer, 2004). Movies show common human problems, such as scenes of pregnancy and birth, critical and chronic illness, family and intimate partner violence, problems with children, teens, elderly and dying. Using short clips from movies is an effective way to initiate a discussion with students in personal and professional development module. Reflection on the actions of the character often helps medical students to understand sympathy, motivations and life choices, and to develop an empathetic awareness in different realities of others, which are important factors in medical profession.

Materials and Methods

This paper presents an education study that was conducted among 206 first year medical students from 3 universities in Malaysia, such as MARA University of Technology, MAHSA University and National Defence University of Malaysia (NDUM). Convenience sampling was used to draw the sample and verbal informed consent was obtained from the medical students in this study. The movie “Patch Adams” was chosen for this study. The participants were distributed the audit forms after the screening of the movie and discussion during the personal and professional development (PPD) module session. The audit forms contained self-administered questionnaires with the Likert-type scale for assessment of students’ perception on movies and subsequent discussion. Scoring was based on a 3-point Likert-type scale: 1 (disagree), 2 (not sure), and 3 (agree). The quantitative and qualitative data from this study were derived from the questionnaires, whereas the questions were focused on relevance to medicine, level of enjoyment while watching the movie, acceptability of scenarios, role of doctors, and usefulness of movies for future career. The questions related to discussion assessed how relevant, interesting and useful was the discussion, as well as the role of facilitator.

Results and Discussion

Two hundred and six (206) medical students from year 1, who were studying PPD module and participated in this study, included 20 medical students from MARA University of Technology, 139 students from MAHSA University and 46 students from the National Defence University of Malaysia.

Table 1

First Year Medical Students' Perception on the Use of the Movie in PPD Module

Audit Item	MARA University of Technology (n = 20)			MAHSA University (n = 139)			NDUM (n = 46)		
	A ¹ (%)	D ² (%)	NS ³ (%)	A (%)	D (%)	NS (%)	A (%)	D (%)	NS (%)
Movie was good for teaching	20 (100)	0	0	NA ⁴	NA	NA	NA	NA	NA
Movie was relevant to medicine	20 (100)	0	0	127 (91.3)	0	12 (8.7)	46 (100)	0	0
Movie helped to understand doctor's behavior	20 (100)	0	0	130 (93.5)	0	9 (6.5)	42 (92.2)	0	4 (7.8)
Movie was useful for future endeavors	20 (100)	0	0	126 (90.9)	0	13 (9.1)	44 (95.7)	0	2 (4.3)
Movie was enjoyable	20 (100)	0	0	136 (98)	2 (1.3)	1 (0.7)	45 (98)	0	1 (2)
Scenario was acceptable	20 (100)	0	0	116 (83.5)	5 (3.4)	18 (13.1)	39 (84.9)	2 (4.3)	5 (10.8)
Post-movie discussion was useful	20 (100)	0	0	125 (89.6)	0	14 (10.4)	38 (82.6)	0	8 (17.4)
Facilitator played positive role	20 (100)	0	0	135 (97.4)	0	4 (2.6)	46 (100)	0	0

*A= Agree D = Disagree NS = not sure NA = not applicable

Table 1 showed that the students from MARA University of Technology fully agreed (100%, n = 20) that the movie was really good for teaching purpose, relevant to medicine, helpful in understanding doctor's behavior, useful for future development and enjoyable. Besides, all of them felt that the scenario was remarkably acceptable, post-movie discussion was useful, the facilitator worked with the group in a positive manner. Among the students from MAHSA University and NDUM, 89.6% (n = 125)

and 82.6% (n = 38) respectively, agreed that post-movie discussion session was useful. The majority of MAHSA University students agreed that scenario was acceptable (83.5%, n = 116) and felt that the facilitator played a positive role in a discussion (97.4%, n = 135). In the NDUM, 84.9% (n = 39) of students also accepted the scenario, and all of them agreed that facilitator was good (100%, n = 46). More than 90% of students from MAHSA University and NDUM rated the movie as relevant to medicine, helpful in understanding doctor's behavior, useful for future endeavors and enjoyable.

Most of the studies on the use of movies in medical education applied qualitative approach to data analysis. Our study has some similarities with the recent study by Alis and Nazan (2014). Both studies conducted an analysis of the quantitative and qualitative data derived from questionnaires, which were distributed after the students had watched the movies followed by a facilitator-moderated discussion. Regarding the study results, Alis and Nazan (2014) showed that 88% of films used by them in medical education were rated as good by the students, and 54% of their respondents felt that terminally ill patients were fully portrayed in a very realistic way in the movies, which is consistent with our findings. Similar to our findings, most of the students (63%) in their study were personally satisfied after watching movies.

Besides, the above mentioned study revealed that 80.5% of their student respondents reflected to a considerable degree the emotional and spiritual suffering that dying patients were going through in the movies (Alis & Nazan, 2014). Importantly, the majority of their students (80%) thought that using movies about palliative care as the teaching approach was more useful than didactic lectures. The students thought to a great and considerable degree that movies were helpful in answering questions with regard to the medical profession such as "How to talk with patients about prognosis?", "How to give bad news?", "How to talk with patients about their end-of-life treatment wishes?", and "How physical pain is treated?" It is worth mentioning that the importance of end-of-life education by using dramatic arts has been also demonstrated by other researchers (Lorenz, Steckart, & Rosenfeld, 2004).

PPD is an important component of medical education which is responsible for nurturing future good medical doctors, who should be skillful and knowledgeable, and have positive attitude towards their patients. Patient care and professionalism are the key in medical profession, including respect for patient and peers, awareness of values, empathy and ability for compassion, sensitivity to patient's culture, age, gender and disabilities and so on. Our study tried to determine whether the important qualities of good doctors could be highlighted in the process of medical education by using movies. Additionally, the idea behind this study was that after watching movies on medically-related topics it is easier for the teachers or facilitators to discuss the non-teachable issues, especially empathy, and patient-doctor relationships and emotions, to comply with the holistic concept of medical education. The study of Blasco, Roncoletta, Moreto, Levites, and Janaudis (2006) stated that the lecturers commonly use a broad range of biographical experiences and situational factors to influence the PPD and promotion of empathy in medical students. Part of these experiences contribute to the role model teaching scenario, in which students and young doctors are inspired by the teacher's attitudes in dealing with patients. The role model allows medical students to incorporate attitudes, behaviors, and approaches in

relation to real patients and identify emerging issues useful for their future endeavor (Blasco et al., 2006).

From the understanding of many studies, the challenges that medical students face during their long clinical training can lead them to become less empathetic and more detached from their patients (Hojat et al., 2004; Hojat et al., 2009; Neumann et al., 2011; Chen, Kirshenbaum, Yan, Kirshenbaum, & Aseltine, 2012). Despite the fact that there are studies that do not support this view (Quince, Parker, Wood, & Benson, 2011; Costa, Magalhaes & Costa, 2013; Rosenthal, 2011; Newton et al., 2000), we decided to promote attributes of humanity by using the movie relevant to medical profession among the first year medical students. In other words, we introduced the movie which teaches future doctors to be empathic at the early stage of medical education when the medical students are not yet exposed to clinical training.

Regarding the post-movie discussion session, the study conducted by Blasco (2001) suggested that an open discussion of literature or screened films among students, facilitated by faculty educators to highlight emerging topics, has proven to be a useful and enjoyable way of teaching which successfully reflects in the development of personal and professional attitudes and values of medical students. In our study we also showed that the group facilitated discussion after movies stimulated the students to express views more openly. Our students appreciated the discussion session and found it enjoyable and useful for their future endeavors.

Conclusion

From the results of this study, it can be concluded that the vast majority of first year medical students from all three institutions of higher learning in Malaysia found the movie used in PPD module enjoyable, interesting and acceptable in learning, and agreed that the post-movie discussion was useful and relevant. Almost all the students felt that the facilitator played positive role in a discussion. Medical students felt that movies enhanced their learning related to PPD and could motivate the applicability of medical education concepts.

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VISSER: Addressing the need for modern science laboratories in the Philippines

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Abstract

Access to modern science laboratories is still a problem in most public high schools in developing countries like the Philippines. Based on a survey with 173 respondents conducted from September 2013 to June 2014, 77% of schools have laboratories. However, only 33% and 15% have access to digital measuring devices and sensors, respectively. To address the need for modern science laboratories, we develop the Versatile Instrumentation System for Science Education and Research (VISSER). VISSER integrates both hardware and software in the experiments and research. It uses both generic and custom probes that can be adapted for different applications. Handheld modules and sensors were developed to be compact and can be used without a computer. These modules are currently being piloted in-class in the subject areas of physics, chemistry, biology, environmental science and engineering. Despite its sophistication, VISSER is cost-effective. The modules are roughly 1/10th of currently available commercial products which makes it affordable to all schools, even to those that have extremely modest funding.

Keywords: science education, instrumentation, hands-on learning

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Introduction

Science is best taught by experiential learning through the use of hands-on activities. Students who are engaged in hands-on activities attained higher science achievement scores compared to those who not (Stohr-Hunt, 1998). Better learning and attitude towards science are also developed when students experience actual science through hands-on activities integrated in classrooms (Carlson, L.E. and Sullivan, J.F.,1999, Onstein, A., 2006). Pedagogical measures show improvement in learning when modern technologies where incorporated in teaching (Zacharia, Z. and Constatinou, C. 2008). Modern technology, such as modern instrumentation can definitely improve learning through hands-on activities (Roxas-Villanueva, RM et al., 2012).

The Philippines struggled to improve the quality of its science education. In the 2011-2012 Global Competitiveness Report of the World Economic Forum, the Philippines ranked 112th out of 139 in 2011, and 115th out of 142 in 2012 in quality of math and science education. This is the Philippines' rank even though 1100 minutes per week is spent on science by every student under its basic education curriculum, higher than neighboring countries Brunei (810 min/week), Singapore (540 min/week), and Malaysia (360 min/week). Education spending in the Philippines, at \$138/student/year is more in line with its science and mathematics performance since it is lower than Thailand (\$853/student/year) and Singapore (\$1,800/student/year) (World Economic Forum, 2011). Apparent problems with Philippines' science education are the lack of laboratory facilities and equipment, and modern instrumentation. This limits the capacity of teachers to guide students learning through experimentation and hands-on activities.

A survey participated by 173 teachers from different provinces in the Philippines shows that there are still 23% that do not have access to a laboratory and only 39% have access to at least one laboratory dedicated to a specific field of science (Figure 1). Modern instrumentation, such as measuring sensors are only limited to 15% of the respondents (Figure 2).

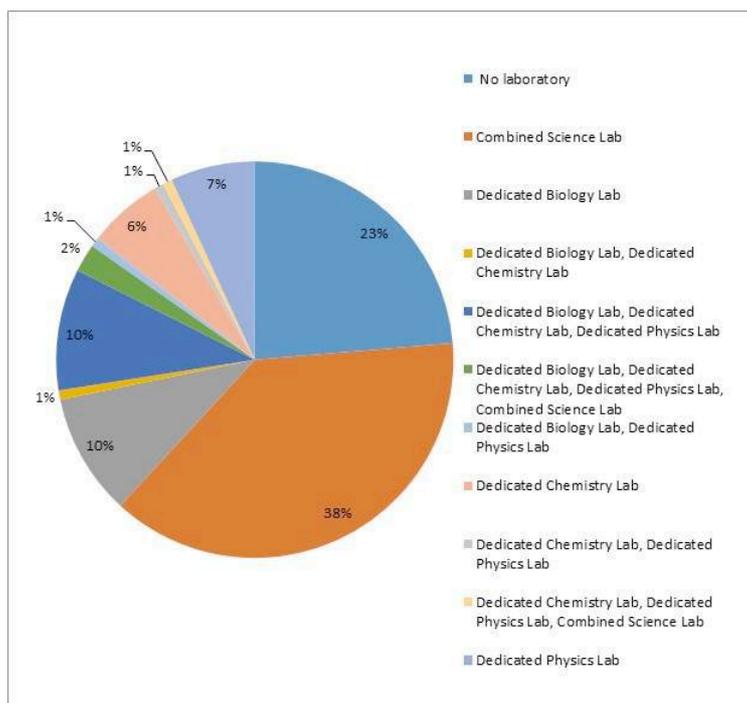


Figure 1: Teachers' access to a laboratory facility

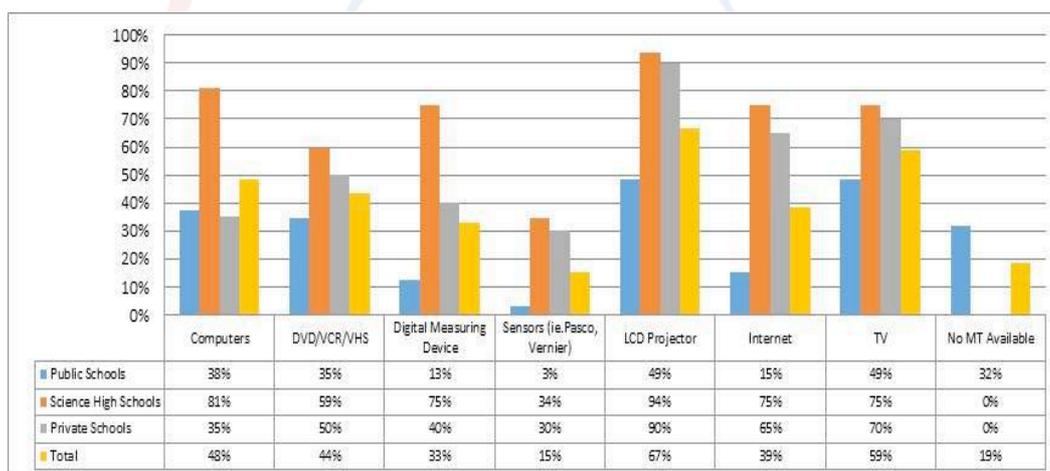


Figure 1: Teachers' access to modern technology

VISSER aims to provide high schools with a stronger backbone on science subjects, through the establishment of a system centered on a handheld microcontroller-based universal platform used in a network of different sensors to perform experiments in various science fields and production of fully integrated hardware and software that are supplemented by well-written, highly descriptive experimental modules.

Methodology

The integration of handheld and sensors, and experimental modules enable VISSER to develop different experimental set-ups in the field of physics, chemistry, biology, environmental science and engineering that can be used in science laboratories in different Philippine-school settings.

The Handheld is based on a programmable microcontroller with 8 ports where sensors can be attached. Users with skills in programming can alter and improve experimental set-up or even design its own. Different sensors can be simultaneously used to develop diverse set-ups.

Acquisition of data can be done real-time and can be also saved in a SD card if computers are not readily available for data processing. The handheld can be powered through USB, power outlet or batteries that considers the availability of resources in any school setting. It can be also use in field experiments outside the confines of the laboratory. Visualization is readily available when attached into a computer. Illustrating relationships through graphs and trends are effortless since data is rapidly collected digitally.

Home-grown experimental modules reflect the local experiences and include specific and measurable objectives that would guide educators in its use. Higher Order Thinking Skills (HOTS) were consciously placed in the objectives so that students will develop deeper knowledge in the topics and skills that are necessary for the changing times. The experimental modules use inquiry-based approach in presenting the topic. The modules are design to include in its parts the 5 E's (Engage, Explore, Explain, Elaborate and Evaluate/Extend) of the inquiry-based approach to seamlessly tackle lessons in different fields of science and engineering.

Despite its sophistication, VISSER is cost-effective. The modules are roughly 1/10th of currently available commercial products which makes it affordable to all schools, even to those that have extremely modest funding.

VISSER is tested in real classroom set-up through the use of two teaching methods, hands-on experiment and teaching demonstration. For hands-on experiment, or simply Hands-on, students, divided in groups of 3 or 4, performed the experiments following the VISSER modules with teachers acting as facilitators. After the experiments, the teachers conducted a post laboratory discussion. For the second method, the teacher would teach the same module in his or her preferred teaching technique but must incorporate a teaching demonstration of the experiment described in the VISSER module, the method is called Demo. The content, objectives and time duration was kept constant for both teaching method. A control was set by randomly selecting student that would have an unguided reading activity (Reading) of the same topic.

Both teaching methods and control took an examination before and after the conduct of the testing. The preliminary and post examination have the same number of items and level of difficulty. The comparison of result in preliminary and post exam would indicate the immediate cognitive learning impact of VISSER to students.

The preliminary and post test scores where compared using the Hake gain (Hake, R. R., 1998). The Hake gain or the average normalized gain $\langle g \rangle$ can be computed by taking the ratio of the actual average gain $\langle G \rangle$ to the maximum possible average gain (Hake, R. R., 1998), i.e.,

$$\langle g \rangle = \frac{\% \langle G \rangle}{\% \langle G \rangle_{max}} = \frac{\% \langle S_f \rangle - \% \langle S_i \rangle}{100\% - \% \langle S_i \rangle}$$

where $\% \langle S_i \rangle$ is the percent average of the preliminary test scores and $\% \langle S_f \rangle$ is the percent average of post test scores. The range of the Hake gain is between -1 and 1. A positive $\langle g \rangle$ indicates that students perform better in the post test compared to the preliminary test, and $\langle g \rangle = 0$ means students' performance is the same. A higher $\langle g \rangle$ suggests higher cognitive learning of students. A negative value for $\langle g \rangle$ indicated that instead of cognitive learning, misconceptions or confusions were developed.

The Hake gain of students can be classified by the following: $\langle g \rangle \geq 0.7$, High Hake gain; $0.3 \leq \langle g \rangle < 0.7$, Medium Hake gain; and $\langle g \rangle < 0.3$, Low Hake gain (Hake, R. R., 1998).

Results and Discussion

Figure 3 plots the $\% \langle G \rangle$ vs S_i of 173 students from 4 heterogeneous sections of the same grade-level (grade 9) that participated in the "in class testing" of the VISSER Charles' Law modules. The three solid lines mark the boundary between Hake gain classifications.

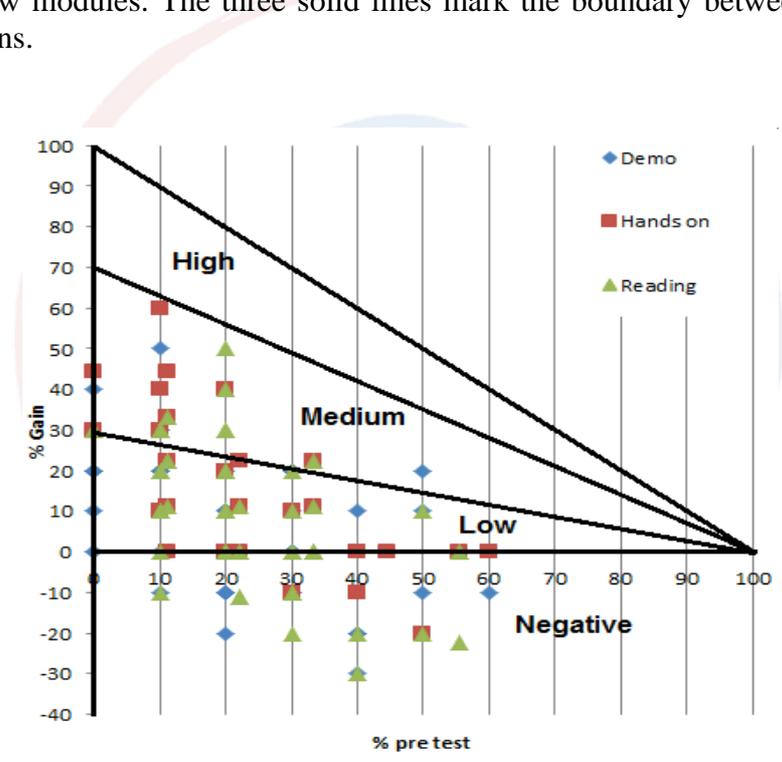


Figure 3: $\% \langle G \rangle$ vs S_i of students in 3 groups. Blue for Demo, red for Hands-on and green for Reading

No student attained High Hake gain on the three experimental groups. Students fall between medium and low gain regime, 60% for Demo, 70% for Hands-on and 73% for Reading. This means that the maximum cognitive learning was not attained using any of the two methods used. Mastery of the topic is not yet developed, since the post exam was given right after the learning activity. But giving the post exam straightaway approximates the impact of each method in the cognitive learning of students.

In Table 1, we can observe that majority of the students in each group have a positive Hake gain. This indicates that majority of the students' attained cognitive learning

regardless of teaching methods used. Twenty-five percent of students in Hands-on achieved Medium Hake gain, this is higher compared to the other two teaching method. Students in the Hands-on group also attained the highest average Hake gain (0.19).

Table 1: Summary of results

	Demo		Hands on		Reading	
Frequency	48		67		58	
High Hake gain	0	0%	0	0%	0	0%
Medium Hake gain	5	10%	17	25%	11	20%
Low Hake gain	30	50%	40	45%	37	53%
Hake gain = 0	6	13%	10	15%	6	10%
Negative Hake gain	13	27%	10	15%	10	17%
Average % Gain	7.29%		14.86%		8.95%	
Average Hake gain	0.09		0.19		0.12	
Standard Deviation	0.22		0.23		0.23	

Negative gain is present regardless of what group they belong; misconceptions or confusions can be developed in the methods used in the testing. The biggest percentage of students that have negative Hake gain belongs to the Demo group while the lowest belongs to the Hands on group.

Developing misconception or confusion can be attributed to the roles of teachers in the learning process. In the group conducting hands on experiment, the students are directly experiencing the phenomena. Student learning are guided by the VISSER module with facilitation of the teachers. Students' direct participation in the learning activity promotes self –learning and conception of his own knowledge. The facilitation of teachers results in lower percentage of students who have developed misconception as compared to reading activity wherein they are unguided and allowed to read at their own pace.

A large, but consistent standard deviation is computed on the Hake gain of the three groups. This shows how students vary randomly in characteristics, such as how they understand the concepts, their prior abilities and attitudes towards the exam. [8].

Conclusion

The lack of facilities and modern instrumentation in secondary schools limits the capacity of teachers to implement experiential learning through hands-on activities. VISSER address this deficiency by providing microcontroller-based handheld, coupled with sensors and set-up and guided by modules developed for Philippine schools in the field of biology, chemistry, physics, environmental science and engineering. Hands-on experimentation using VISSER resulted in a positive net Hake gain. It also comparatively resulted into smaller negative Hake gain due to mistakes or confusion.

Still, negative Hake gain should be addressed. This could be done by making revisions to the VISSER modules. Adaptation to the K-12 curriculum is being implemented. The “in-class testing” must be replicated to more schools in different school conditions in the Philippines. Aside from cognitive learning, affective and skills learning will also be incorporated.



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***The Teaching of Speech and Oral Communication in English for Computer Studies
Students: A Needs Analysis***

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Abstract

This study was conducted to assess the needs of computer studies students in terms of speaking the English language for occupational purposes. The insights of selected English language and computer science professors, practitioners in the field of computer, and students were sought and analyzed. Interviews, surveys, observations, and literature reviews were done. The students observed were from a state university in Quezon City, Philippines. They were selected through stratified random sampling, while the respondents- instructors and practitioners were chosen via purposive and convenience sampling respectively. This gave a total of 200 participants. The researcher applied objective and qualitative interpretations of data to identify the speaking needs of the student respondents. Using the Munby Model, a profile of communicative needs was prepared. The results imply that these must be considered in the preparation and development of syllabus for the course.

Keywords: Speech and oral communication, students' needs analysis, teaching English for occupational purposes

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Introduction

In this fast-paced digital age, language is still the main instrument of spreading information. It is the primary means of transferring vital information from different sectors of the society, be it spoken or written. As technology advances, the need to acquire a common language is becoming more urgent, and since English is the international medium of communication, the necessity to learn this language by all peoples of the world is at its peak.

It is undoubtedly true that learning the English language is vital in surviving this highly competitive world. Its essence in all areas of life can't really be denied. In commerce, education, medicine, and in other fields of endeavor, English, either in its written or oral form is very important. But does everyone has the facility of the English language which helps him survives this challenging time? Is everyone confident enough in articulating his thoughts and ideas through spoken English?

In this era of high technology, it is still a world of speech communication. While there is an increasing use of telecommunications to access the information super highway, person-to-person speech communication situation remains to be the basic means of global communication. Also, "effective oral communication. followed by listening ability and enthusiasm is still the most important factor in helping graduating college students get employment," say Winsor, Curtis, and Stephens (Padilla et al. 2003, p.10).

In most countries, of the world where English is regarded as a second or foreign language, speaking it is quite a hard endeavor. Vis-à-vis spoken language, it is more problematic because one does not only need to be acquainted with syntax, morphology, and semantics, but he must also have sufficient knowledge of phonology as well as strategies in applying spoken English. One who intends to be competitive in spoken English must strive to have a good grasp and an acceptable production of English sounds, which in cases of nonnative speakers is truly hard to do, because many of its sounds are not present in his native language.

In the statement of Cook (1996) that language is the center of human life, he definitely aimed to reiterate that language is really of vital role in the development and progress of men. Furthermore, he stressed that language is the one used to express and to communicate thoughts and feelings by people. And at present, English is one of the main language of communication.

On the other hand, Krashen (1996) stated that children experience little difficulty in acquiring more than one language, and after puberty, people must expend greater effort to learn a second or foreign language. This supports the idea that people learning English as a foreign or second language are encountering problems in learning to speak as well as to write the language. Brown (1994) mentioned a number of features that make speaking a challenging language skill. To start with, fluent speech contains reduced forms such as contractions, vowel reduction and elision, so that learners who are not exposed to or do not get sufficient practice with reduced speech will retain their formal-sounding full forms. The same can be said for the use of slang and idioms in speech. Without facility in using this ubiquitous features of spoken language, learners are apt to sound bookish. Students must also acquire the

rhythm, stress, and intonation of English, a complicated task for many. Lazaraton on her article on *Teaching Oral Skills* has perceived that the most difficult aspect of spoken English is that it is almost always accomplished via interaction with at least one speaker. This means that a variety of demands are in place at once: monitoring and understanding the other speaker(s); thinking about one's own contribution, producing that contribution, monitoring its effect; and so on (in Murcia 2006).

In the case of students in the Philippines, learning spoken English is not also that easy. Since the structure and phonology of the Filipino language and English differ in many aspects, learning the latter is also a struggle. Yet, Filipinos are truly motivated to improve and to learn. Moreover, learning a second language (English) offers great opportunity like getting a good job, a chance to get educated in good institutions, the ability to get a fuller life in one's own country or emigrate, and understanding one's culture and religious belief (Trager & Bloch 1942). But the question is, will the Filipinos have better chances since they speak English as a second language and since it is used as the language of education and the government?

The question posed is a challenge laid on the hands of the educators, curriculum developers, educational managers, and teachers. With focus on speech and oral communication course which is offered in college programs, what should be taught here? Would it be generic in content or would it be specific depending on the program the students are enrolled into?

Many cases reveal that teaching speech and oral communication among college students is so general that what is being taught in the liberal arts is what also being taught in the engineering or technology programs. Approaches as well do not vary in any means. This scenario is quite bothering since the practices, drills, or role plays provided to students are not directly aligned to where the students possibly use speaking in the future; therefore, they are not benefiting, in terms of their future professions, with their training from their speech and oral communication classes.

Hedge (1993) said that in teaching oral communication skills, there should be focus on the balance between accuracy and fluency. He mentioned two definitions of the latter: (1) the ability to link units of speech together with the facility and without strain or inappropriate slowness or undue hesitation, and (2) "natural language use", which is likely to take place when speaking activities focus on meaning and its negotiation, when speaking strategies are used, and when overt correction is minimized. It should not be forgotten that it should also focus on specific purpose. For example, in speaking for business, a text for highly-advanced learners in business fields, students must learn to plan and conduct business meetings, give speeches, make oral presentations, participate in conferences, and socialize with colleagues (England & Grosse 1995).

In computer studies, to include programs in computer science, information technology, information systems, information management and the like, speech and oral communication courses should be tailored on what the students need to learn for their future job deployments. Trainings, practices, and drills contained in the course should deal with real-life situations which they might encounter while studying, and before and during employment. Such activities would prepare them to take the challenges in the actual world which speakers of English as a second or foreign

language are confronted with. This also helps avoid second and foreign language speakers of English to be disappointed and shocked when they use the language for the first time in real interactions because they have not been prepared for spontaneous communication and could not cope with its simultaneous demand (Bailey & Savage 1994). It is therefore in this light that this study was conducted which aimed to assess the needs of computer studies students in terms of speaking the English language for occupational purposes.

Participants

This study was participated by four groups of people namely college students who are pursuing degrees in computer studies such as computer science, information technology, information management, and information systems; instructors teaching professional subjects in computer studies; instructors teaching English language arts; and industry practitioners in the field of computers. The students and instructors were both from a state-owned polytechnic university in Quezon City, Philippines.

The respondents included 150 students in which 100 of them are in the 3rd year level and 50 are 4th year college students. More student were from the 3rd year level because in the university it is in that level that speech and oral communication courses are offered. All 20 instructors from the department of computer studies participated in the research while all 14 faculty members of the language and humanities who are teaching language arts also did participate. On the other hand, 16 industry practitioners were involved. They are systems analysts, programmers, web designers, graphic artists, network analysts, database officers, information systems support, and hardware/software vendors.

Student participants were selected using stratified random sampling. Both the faculty member respondents from the computer studies and English departments were purposively selected, while the industry practitioners selection was based on purposive and convenient sampling technique. This was so because only the identified industry professions were sought and the ones available were asked to be part. All in all, 2 from each industry profession were sought. Thus, the total number of respondents for this study was 200. The table below shows the break-down of respondents:

Groups	Subgroups	Number of Samples	Total
Instructors/ Faculty Members	Computer Studies	20	34
	English Language Arts	14	
Students	Third Year Level	100	150
	Fourth Year Level	50	
Industry Practitioners	Systems Analyst	2	16
	Programmer	2	
	Web Designer	2	
	Graphic Artist	2	
	Network Specialist	2	
	Database officer	2	
	Information Systems Support	2	
	Hardware/Software Vendor	2	
Total Respondents			200

Instruments

This study used three instruments namely survey questionnaire, observation sheet, and interview guide. These instruments were used in the assessment of the learners' needs. The survey questionnaire was personally constructed by the researcher and was co-validated with language experts so that the purpose of the questionnaire will be established. The questionnaire, which is generally intended for the practitioners' evaluation of professionals needs contained possible positions for computer-related degrees, the functions of oral communications on these identified positions, the observed weaknesses of professionals in their oral communication skills specifically on grammar, discourse, socio-cultural, and strategic competence (Canale & Swain 1980), and personal supplemental observations of the respondents that would be a vital consideration in the over-all assessment of the perceived needs of students.

The interview guide intended for instructors, on the other hand, contained questions that elicit information on the capabilities and problems of the students in terms of their speaking communication skills. Also, this included some questions that would help teachers strategize on the speech communication problems of students. The instructors of English language arts were asked about strategies and techniques that would answer the difficulties being identified by them. In the case of the computer studies instructors, they were asked about the speaking engagement computer studies graduates may face and how their current students are performing in their oral communication skills. Specific speaking problems were taken down for evaluation and consideration.

As regards the observation sheet used, it was a journal of the vital information about the students that the researcher believed to be relevant in the analysis of their language needs. These data were accumulated from the integration of the researcher and three other English language arts instructors to the computer studies students. The observation sheet also contained a checklist of the micro and macro skills of oral production based on the scale of H. Douglas Brown (2004).

Procedures

To assess the needs of the computer studies students in terms of their speaking the English language for occupational purposes the researcher thoroughly underwent several procedures. These procedures were based on the proposed steps posited by Rodgers and Richards (2001) like literature review, survey questionnaire, observation, and interview. First, the researcher conducted a survey of industry practitioners. This was done through a survey questionnaire distributed to selected computer-related professionals- programmers, systems analysts, graphic artists, database officers, network specialists, information systems support, educators, software vendors, and hardware vendors. The questionnaire contained information and questions which were believed to elicit the possible needs requirement of the students. After collecting the questionnaires from the respondents, these were qualitatively analyzed and interpreted.

Second, the researcher interviewed the instructors of computer studies and English language arts. In this procedure, they were asked to describe the speaking abilities of their students and their general perceptions of their students' interests. They were also

asked to cite some perceived difficulties in speaking among students as they interact with them in their classroom discussions. Also, the computer studies instructors were asked similar information as to what were asked to practitioners. There, they were asked to give some suggestions on what particular aspects should computer studies students be trained more in their oral communication skills, since they know better the technicalities of that discipline. On the other hand, the English language instructors were asked to elaborate on the difficulties perceived among their computer studies students in terms of their spoken English. They were also asked by the researcher to give pedagogical strategies to attack these perceived problems.

Then the researcher did formal and casual observations among computer studies students. Here, the researcher intended to witness and to assess what requirements were needed by the students. He sat in some classes and observed the oral communication skills of students. He also made use of his own classes as case study. These observations also aimed to know the competence of students in their cognitive academic and interpersonal communicative skills in which the latter is believed to be more dominant in the conduct of their professions as computer professionals.

Next, the researcher surveyed and reviewed existing literature. This was done with the belief that existing records would help easily determine the needs of the students. The students' profile was reviewed because by knowing their backgrounds, their speaking abilities can be correlated. For example, it was perceived that children of professionals are more likely to speak better English than the children of non-professionals. On the other hand, books and documents on computer field careers were reviewed by the researcher for him to understand the job function and to determine the language function necessary in the conduct of the task.

Lastly, the researcher analyzed and interpreted the collected data. From the analysis, he developed the profile of the learners' communicative needs.

Results, Discussions, and Recommendations

The researcher used the Munby Model (1978) in profiling the students' needs. This model describes the kind of information needed to develop a profile of the learners' communicative needs, given in summary: (1) Personal- who are the students, their age, sex, educational background; (2) Purpose- the kinds of outcomes expected such as the communicative skills the students need to develop; (3) Setting- the jobs the students will be performing in the future and who they might be engaging within their work place; (4) Interactional Variables- their relationships with bosses, colleagues, clients and others; (5) Medium, Mode, and Channel- spoken, whether face to face or not; (6) Dialects- both formal and casual styles; (7) Target Level- basic, intermediate, and advanced level; (8) Anticipated Communicative Events- spoken language functions in the workplace; and (9) Key- the way the spoken communication is delivered (Schutz & Derwing 1981).

The table that follows presents the needs profile of the students:

Computer Studies Students Profile of Communicative Needs	
Personal	The learners here are the computer studies students who are taking speech and oral communication courses.
Purpose	The students, attending their speech and oral communication classes, are expected to improve their confidence and their oral communication skills relevant to their occupational tasks.
Setting	After graduation, students may be employed as programmers, graphic artists, web developers, systems analysts, database officer, network specialists, lecturers/trainers/instructors, software vendors, hardware vendors and other related jobs.
Interactional Variables	Professional Relationship: employee to employee, employee to superior, and employee to clients
Medium, Mode, and Channel	Spoken: face to face or through channel
Dialects	formal or casual style
Target Level	basic, intermediate, or advanced level
Communicative Events	This includes job interviews, presenting project plans, reporting project outputs, conducting lectures and trainings, conducting and sharing opinions during meeting, participating in project discussions, expounding or explaining processes to inquirers, eliciting information, explaining project specifications, and other related tasks.
Key	professional manner

This profile of communicative needs was developed based on the various processes that the researcher underwent from to assess the needs of the computer studies students. In reference to the assessment, it was found out that the students might be employed as programmers, web developers, graphic artists, systems analysts, database officers, information systems support, lecturers, instructors, trainers, software vendor, hardware vendor and other related jobs, thus, they would need to enhance their confidence and their oral communication skills for them to perform their jobs in tasks or functions which need spoken communication.

In his observation, the researcher found out that computer studies students rarely used English in their basic interpersonal communication and they seldom used it in the academic setting. These two observations contributed to the lack of confidence and oral communication skills of the students. The students seemed shy in speaking in English and rarely do they attempt to use English in either setup- interpersonal or academic communication. They tend to be very mechanical and at the same time inadequate in terms of fluency and strategy in using the language. Oral production skills among them were said to be average if not poor.

With his interview with the instructors, he found out that his recorded observations were the same as theirs. They observed that students cannot produce long discourse in full English. Also, the Filipino language was used in dealing with their major subjects- discussions, reporting, and the like. In instances that they were required to

use English, they felt shy and intimidated. It was also a common observation among instructors that the students oftentimes commit grammatical lapses in their utterances. Most common of these were subject-verb agreement, tense usage, prepositions, and proper word choice. In terms of phonological structure, they have observed that students had difficulty in producing the critical sounds of English, both vowels and consonants, the correct accent (words, phrases, or sentences), the rhythm and intonation pattern, and blending which are essential elements for students to approximate standard speakers.

The computer studies instructors identified possible events where speaking would be necessary and some of these were included in the profile of communicative needs. They also identified the most common difficulty of the students and that included expressing their ideas about solutions of computational problems and the organization of these ideas.

As a result of the survey among industry practitioners, the researcher found out that the functions of oral communication in the workplace were as follow: Answering to job interviews; presenting project plans, reporting project outputs; conducting lectures and trainings; conducting meeting and sharing opinions during the meeting; participating in project discussions; explaining or expounding processes to inquirers; talking clients about their concerns; and explaining project specifications to colleagues, superiors, or clients. In relation to the speaking competence of employees, the surveyed revealed that employees commonly commit mistakes in their choice of appropriate words, in their production of critical sounds including rhythm, intonation, blending and accent. They also stuttered and muttered in speaking and they did not speak straight English during conversations. Moreover, many of them did not observe turn-taking and had poor interpretations of non-verbal signals. This also brought them difficulty on them in bringing back the conversation in order when there was disregard of turn-taking, and in clarifying vague signals such as body language meaning, verbal message or voice tone which seemed to be difficult to interpret during a speech act.

The aforementioned processes that brought the results discussed supports Ana Johns and Donna Mechado's argument that, "in every genuine ESP (English for Specific Purposes) course, needs assessment is obligatory, and in many programs, an ongoing need assessment is integral to curriculum design and evaluation" (2003 p.49). They further stressed that, "in performing an assessment, practitioners attempt to determine as closely as possible what students need to do- in English language contexts or with English language literacies" (2003 p.49). Process-based and sophisticated methods in assessing learners' needs have increased over the years. These include multiple intelligence and learning style survey, mode of working, spoken or written reflection, and what this research had used like survey questionnaire, interviews from expert, student observations, and job-shadowing analysis (1988).

Truly that an honest and objective assessment of the needs of students will help the teachers to strategize and align their lessons to what are most needed by the learners, and the curriculum planners to craft the appropriate course content that will best serve the learners. Thus, it is recommended that further and continuous needs assessment should be done to meet the needs of students in accordance with demands of the industry and to continuously update and develop the syllabi and materials used in the teaching and learning of speech and oral communication for computer studies students.



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Is More the Merrier: Relationship Between Taiwan University Students English Language Learning Strategies and English Proficiency Test Performance

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Abstract

Second language learning has always been a complicated process involving many factors such as biological, neurological, psychological, and sociological factors. Among those factors, learning strategies, if used appropriately, have been proven to contribute to the success of second language learning when a learner is able to employ a range of them in learning a foreign or second language (Brown, 2007; Bull, 2000; Oxford, 2003; Rubin and Thompson, 1994). The focus of research on language acquisition has gradually shifted from examining mainly the teacher and teaching pedagogy towards the correspondence of language acquisition and the learners' learning strategy (Lee, 2003); prominent emphasis is on looking at the strategies and techniques the learner employs when learning a language. This study investigates the language learning strategies employed by English major and non-English major freshmen as well as its relationship with their performance on the College Student English Proficiency Test.

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Introduction

Second language learning has always been a complicated process involving many factors such as biological, neurological, psychological, and sociological factors. Second language learning behaviors and learning strategies, among different factors influencing second language learning, if used appropriately may contribute to the success of second language learning (Bull, 2000). Within the recent decade, research findings in the field of second language acquisition have pointed out the significant role that learners portray in the language learning process (Brown, 2007; Oxford, 2003). A proficient language learner, as described by Rubin and Thompson (1994) is one that is able to employ a range of learning strategies in learning a foreign or second language. Prominent emphasis is on looking at the strategies and techniques the learner employs when learning a language.

It is the intention of this study to investigate the language learning strategies employed by English major and non-English major freshmen in an university in southern Taiwan. In order to achieve the objectives of the study, the following research questions are addressed.

1. What are the differences between English major and non-English major students' CSEPT performance?
2. What are the main learning strategies English language major students employ?
3. What are the main learning strategies non-English language major students employ?
4. What are the significant differences between English major and non-English major students' learning strategies?

Literature Review

Language Learning Strategy

Over the past years, many researchers (Rubin, 1975; Politzer & McGroarty, 1985; Kovac, 1978; Politzer, 1983; Rubin & Thompson, 1994) have tried to identify the behaviors good language learners exhibit. Rubin (1975) for one, pointed out that good language learners can be successful in various ways, and he identified the following characteristics commonly exhibited by good language learners: making reasoned guesses when not sure, making an effort to communicate and to learn through communication, finding strategies for overcoming inhibitions in target language interaction, practicing the language whenever possible, monitoring their speech and that of others, attending to form, and paying attention to meaning.

Language learning strategies can be viewed as ways that learners process information, improve the comprehension, learning, and retention of the information. While definitions are various, one of the most frequently cited and applicable definitions would be the one provided by Oxford (1990). According to Oxford, she defines language learning strategies as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (1990, p.8). In this sense, language learning strategies is a reflection of the specific actions a learner intends to take in order to learn a

language.

Learning strategies that learners employ in the process of language learning have been classified and described by researchers such as Oxford (1990). The following lists out the taxonomies of language learning strategies identified by Oxford (1990).

Oxford's classification of language learning strategies

Oxford divided language learning strategies into two main categories, direct and indirect, with each of them having three subdivisions. With direct strategies all require “mental processing of the language,” (1990, p. 37), the subdivisions that fall under this category are “memory strategies,” “cognitive strategies,” and “compensation strategies.” The indirect strategies are used for general management of learning and include “meta-cognitive strategies,” “affective strategies,” and “social strategies.”

Memory strategies

Memory strategies are based on simple principles such as making association and reviewing; learners create mental images, apply images and/or sounds, and review the application. Memory strategies help learners save information for future use. It has been observed that memory strategies are most frequently applied in the beginning process of language learning and as learners progress to a higher level of language proficiency, memory strategies become less employed due to the awareness of it becoming less.

Cognitive strategies

Cognitive strategies help learners to understand and make use of what they learn. Learners manipulate and transform the target language by repeating, analyzing and summarizing the information they receive. Four sets of information processing included in cognitive strategies are practicing, receiving and sending messages, analyzing and reasoning, and creating structure for input and output.

Compensation strategies

Compensation strategies are generally employed when learners have insufficient knowledge of the target language. These strategies make up for the learner's deficiency in grammar and vocabulary. When learners face difficulties comprehending new information such as new words, they guess the meaning of the new words intelligently by using contextual clues or their background knowledge.

Meta-cognitive strategies

Meta-cognitive strategies are beyond the cognitive mechanism and are the strategies learners use to plan and coordinate their learning. Three sets of strategies are included: centering your learning, arranging and planning your learning, and evaluating your learning. Centering the learning helps learners to stay focus and direct their energy towards learning certain language elements. Arranging and planning learning enable learners to receive maximum reward from their learning, and evaluating learning help learners to examine their progress.

Affective strategies

Affective strategies help learners to adjust their attitudes, emotions, motivations and values to create the most suitable emotional state for maximum benefit of language learning. Having positive feelings toward learning the target language may generate more meaningful input and practice and result in more effective learning.

Social strategies

Social strategies involve interactions among language users. Social strategies include the strategies in the following categories: asking questions, cooperating with others, and empathizing with others. Asking questions promotes conversation and helps learners to understand the meaning while cooperating with others eliminates competition thus negative emotions which might retard learning. Empathizing with others enables learners to understand other people's point of views and broaden their acceptance of cultural diversity associated with language learning.

The use of appropriate learning strategies enable learners to be responsible for their own learning while improving their independence, self-direction, and learner-autonomy; it also assists learners to continue their learning after they graduate from school (Oxford & Crookall, 1988). Osanai (2000) found that self-rating proficiency was significantly correlated with the use of language learning strategies in his study of 147 foreign students in universities in the U.S.. Wharton (2000) also reported that students who rated their proficiency as "good" and "fair" used Strategy Inventory for Language Learning (SILL) strategies significantly more often than those who rated their proficiency as "poor." Many research studies suggested a strong positive relationship between L2 proficiency and the use of language learning strategies (Bremner, 1998; Green & Oxford, 1995; Griffiths, 2003; Oxford and Nyikos, 1989; Park, 1997).

The choice of language learning strategies may also relate to a learner's academic major. Oxford and Nyikos (1989) reported that students in Humanities/Social Sciences and Education preferred functional practice strategies and resourceful/independent strategies more than students of other disciplines. Oxford and Nyikos (1989) pointed out that the students of Humanities/Social Science/Education seemed to seek out practice opportunities for their communication skills in real settings and to be in charge of their own learning by applying metacognitive strategies. Other researchers such as Chou (2002) and Peacock and Ho (2003) shared similar findings that difference exists in the choice of learning strategies among students with different academic majors.

Subsequent research further points out that among the different types of language learning strategies, compensation strategies are more favorable to Asian students at certain educational levels (Liao, 2000; Chen, 2002; Lai, 2009; Tse, 2011). For example, Tse (2011) examined the difference in the use of language learning strategies by secondary and university students in Hong Kong, the result showed that first year university students adopt compensation strategies in learning English while secondary students use memory strategies.

Tse (2011) indicated that the years of studying English has a strong influence on learner's use of language learning strategies. He later suggested that starting formal instruction earlier would aid students' use of language learning strategies.

The current study is to investigate whether differences exist in language learning behaviors and the use of language learning strategies among English major university freshmen, who generally have higher English proficiency level, and non-English major university freshmen, who generally have lower English proficiency level.

Methodology

Participants

A total of 484 university freshmen participated in this study; 131 were from the English department and 353 were from five non-English departments.

Instruments

The instruments used in this study include the College Student English Proficiency Test (CSEPT) and one strategy questionnaire. The CSEPT has been developed and published by the Language Training and Testing Center (LTTC) since 1997. The use of the CSEPT assists universities and colleges to place students in appropriate levels as well as evaluate students' English learning.

The questionnaire adapted for the study is the Strategy Inventory for Language Learning (SILL) developed by Oxford (1986). The purpose of the SILL is to assess the frequency of use of different L2 learning strategies. On the SILL, there are a total of 50 questions covering six different areas of learning strategies—direct (primary) and indirect (support) strategies, cognitive and metacognitive strategies, syntactic and semantic strategies, formal and functional practice, social strategies, and other strategies—study, affective, and textual.

The questionnaire was translated from English to Mandarin to ensure the study participants would fully understand the questions and thus be able to provide responses that truly reflect their use of language learning strategies.

Data Collection and Data Analysis

Four hundred and eighty four freshmen took the learning strategy questionnaire. The questionnaire results and these students' CSEPT results were compiled and analyzed using the statistical package SPSS (21st edition). The responses to the questionnaire items were scored. The total score for each respondent was obtained by adding the weights assigned to each of the options. For example, the positive answers to the question such as always or almost always true, usually true, somewhat true were marked with 5, 4, 3 respectively, and the negative ones including usually not true, and never or almost never true were marked with 2 and 1 respectively. The total scores were used for a t-test to examine differences in learning behaviors and learning strategies among English major and non-English major freshmen.

Results

The results of the analysis on English major and non-English major freshmen's CSEPT and language learning strategies are shown in the following tables. Table 1 below presents English major and non-English major freshmen's performance on the CSEPT. The difference in English major and non-English major freshmen's CSEPT performance is statistically significant.

Table 1: English and non-English major freshmen's CSEPT performance

English Major		Non-English Major		t	p
M	Std.D	M	Std.D		
246.64	42.79	170.07	58.26	13.334	.000*

* $p < .01$

No statistically significant differences were found in English major and non-English major freshmen's use of most memory strategies except for the following two strategies, "I connect the sound of a new English word and an image or picture of the word to help me remember the word." ($t = -3.989$, $p = .000$) and "I use rhymes to remember new English words." ($t = -3.470$, $p = .001$). The result shows that non-English major freshmen tend to connect the sound of a new English word and an image or picture of the word to help them remember the word, and they also tend to use rhymes to remember new English words more than English major freshmen. The differences between these two groups of freshmen in the use of these two language learning strategies are statistically significant.

No statistically significant differences were found in English major and non-English major freshmen's use of most cognitive strategies except for the following two strategies, "I write notes, messages, letters, or reports in English." ($t = 4.051$, $p = .000$) and "I first skim an English passage (read over the passage quickly) then go back and read carefully." ($t = 2.724$, $p = .007$). The result shows that English major freshmen tend to write notes, messages, letters, or reports in English, as well as skim an English passage then go back and read carefully more than non-English major freshmen. The differences between these two groups of freshmen in the use of these two language learning strategies are statistically significant.

No statistically significant differences were found in English major and non-English major freshmen's use of all compensation strategies except for the strategy "I make up new words if I do not know the right ones in English." ($t = -2.755$, $p = .006$). The result shows that non-English major freshmen tend to make up new words if they do not know the right ones in English more than English major freshmen. The difference between these two groups of freshmen in the use of this language learning strategy is statistically significant. As for English major and non-English major freshmen's use of metacognitive strategies, affective strategies and social strategies, no statistically significant differences were found.

Based on the freshmen's responses to the SILL, the ten language learning strategies employed most often by the freshmen from both English major and non-English major departments are shown in Table 2 below. For the use of language learning

strategies, nine out of the ten strategies used most often by the freshmen from both English major and non-English major departments are the same. These strategies include one memory strategy: they think of relationships between what they already know and new things they learn in English, one cognitive strategy: they watch English language TV shows spoken in English or go to movies spoken in English, three compensation strategies: they make guesses to understand unfamiliar English words, they use gestures when they can't think of a word during a conversation in English, they use a word or phrase that means the same thing when they can't think of an English word, two metacognitive strategies: they pay attention when someone is speaking English, they try to find out how to be a better learner of English, and two social strategies: they ask the other person to slow down or say it again when they do not understand something, they try to learn about the culture of SL speakers.

What are also included in the top ten most frequently employed language learning strategies by English major freshmen are two cognitive strategies: they try to talk like native English speakers and they practice the sounds of English. For the non-English major freshmen, what are also included in the top ten most frequently employed language learning strategies are two memory strategies: they tend to connect the sound of a new English word and an image or picture of the word to help them remember the word, and they remember a new English word by making a mental picture of a situation in which the word might be used.

Table 2: Ten most frequently employed language learning strategies by English and non-English major freshmen

English major		Non-English major	
Strategy	Mean	Strategy	Mean
I pay attention when someone is speaking English. (Metacognitive strategy)	3.99	To understand unfamiliar English words, I make guesses. (Compensatory strategy)	4.01
If I can't think of an English word, I use a word or phrase that means the same thing. (Compensatory strategy)	3.98	When I can't think of a word during a conversation in English, I use gestures. (Compensatory strategy)	3.95
If I do not understand something in SL, I ask the other person to slow down or say it again. (Social strategy)	3.91	If I do not understand something in SL, I ask the other person to slow down or say it again. (Social strategy)	3.93
I watch English language TV shows spoken in English or go to movies spoken in English. (Cognitive strategy)	3.86	I pay attention when someone is speaking English. (Metacognitive strategy)	3.91
I try to find out how to be a better learner of English. (Metacognitive strategy)	3.83	If I can't think of an English word, I use a word or phrase that means the same thing. (Compensatory strategy)	3.89
I try to learn about the culture of SL speakers. (Social strategy)	3.83	I try to find out how to be a better learner of English. (Metacognitive strategy)	3.88
To understand unfamiliar	3.79	I think of relationships between	3.83

English words, I make guesses. (Compensatory strategy)		what I already know and new things I learn in English. (Memory strategy)	
I think of relationships between what I already know and new things I learn in English. (Memory strategy)	3.78	I watch English language TV shows spoken in English or go to movies spoken in English. (Cognitive strategy)	3.70
I practice the sounds of English. (Cognitive strategy)	3.78	I try to learn about the culture of SL speakers. (Social strategy)	3.70
I try to talk like native English speakers. (Cognitive strategy)	3.75	I connect the sound of a new English word and an image or picture of the word to help me remember the word. (Memory strategy)	3.67*
B25. When I can't think of a word during a conversation in English, I use gestures. (Compensatory strategy)	3.75	I remember a new English word by making a mental picture of a situation in which the word might be used. (Memory strategy)	3.67

*p<.01

Conclusion

This study investigated the language learning behaviors exhibited and language learning strategies employed by first year English major and non-English major students in an university in southern Taiwan.

The result of this study shows that there are only few significant differences in English major and non-English major freshmen's language learning strategies. Significant differences are found in the use of two memory strategies, two cognitive strategies and one compensation strategy. For the two memory strategies, non-English major freshmen tend to connect the sound of a new English word and an image or picture of the word to help them remember the word, and they also tend to use rhymes to remember new English words more often than English major freshmen. For the two cognitive strategies, English major freshmen do more than non-English major freshmen in writing notes, messages, letters, or reports in English, and skimming an English passage then go back and read carefully. Meanwhile, the compensation strategy of making up new words when not knowing the right ones in English was found to occur more frequently among the non-English major freshmen than the English major freshmen.

For the use of language learning strategies, nine out of the ten strategies used most often by the freshmen from both English major and non-English major departments are the same. Out of those ten language learning strategies, English major freshmen differ from non-English freshmen in that they try to talk like native English speakers, and they practice the English sounds. Non-English major freshmen differ from English major freshmen in that they connect the sound of a new English word and an image or picture of a situation in which the word might be used, and they remember a

new English word by making a mental picture of a situation in which the word might be used.

From a closer look at the ten most frequently employed language learning strategies employed by these two groups of freshmen, it appears that non-English major freshmen tend to employ compensation and memory strategies more while English major freshmen tend to employ cognitive and metacognitive strategies more. This corresponds to the finding of non-English major freshmen showing statistical significance in their use of memory and compensation strategies compared with English major freshmen and English major freshmen showing statistical significance in their use of cognitive strategies.

This study shows similarities and differences in English major and non-English major freshmen's language learning strategies; however, since the data in this study were collected when students first entered the university, and the extent to which length of acculturation within university influences students' language learning behaviors and language learning strategies is still an empirical question at this point, thus future follow up studies could be conducted to investigate if there are changes in English major and non-English major university students' language learning behaviors and language learning strategies after they have studied in the university for two or more years. Future studies could also consider conducting interviews and classroom observation to gather more in-depth information regarding university students' language learning behaviors and their use of language learning strategies.

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***Readiness of School Administrators in Developing and
Managing Thai Schools for AEC***

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Abstract

The commitment of Thailand to being a part of the ASEAN Economic Community (AEC) by 2015, school administrators have to more proactively adjust themselves in preparation for the AEC. The study aimed to determine the readiness of the school administrators at local regions in developing and managing the schools and explore the difficulties and needs of school administrators in developing and managing their schools at local regions. The study yields the Office of Educational Area Services in providing the explicit school handbook for the AEC, supporting the teachers teaching aids, medias and educational tools. Creating the curriculum for the ASEAN Economic Community course, making connections among the schools in nations and school partnership of the ASEAN Economic Community members are necessity.

Keywords: Readiness of School Administrators, Developing and Managing Thai Schools, ASEAN Community

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Introduction

Education plays a key role in building the ASEAN Community (AEC) and it is as a mechanism instilling values, and concepts of understanding among ASEAN members. It is also important for building up a strong foundation and the economic prosperity of the region. The ASEAN Socio-Cultural Blueprint (ASEAN Secretariat, 2009:2) has determined human resource development as a primary goal of enhancing the livelihoods of the population in the region. The emphasis is on education and the creation of educational opportunities, the investment in human resource development and lifelong learning, and the promotion of employment where appropriate as well as facilitating access to science and technology applications. Recently, the Office of Basic Education in Thailand has operated the project on managing learning to ASEAN community under the project title 'Spirit of ASEAN'. Sixty-eight schools were piloting to be the center of ASEAN studies and for the development of availability and capacity in managing teaching and learning, on the ASEAN community member. To spread out the knowledge on the ASEAN community, the three different models of school were named to separate the school groups in preparation for the ASEAN community as Sister Schools, Buffer Schools and ASEAN Focus School. These schools were generally led the neighboring schools in different activities, boosted students' awareness about the AEC, and getting them to know ASEAN community more deeply. This preparation helps school administrators and teachers beware of adaptation and education shift away from its tradition.

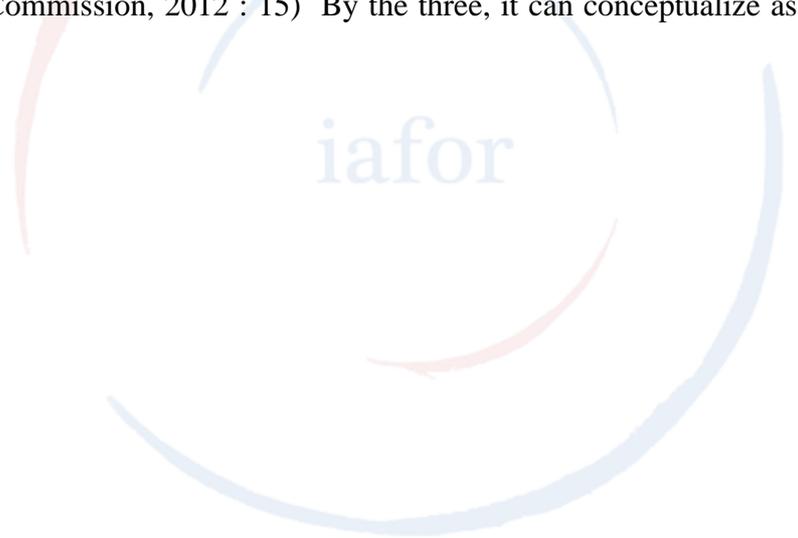
According to the report, the competition on the world stage (The Global Competitiveness Report 2012-2013) of the World Economic Forum presented the figure comparing the quality of education in Thailand on the world stage, especially in ASEAN countries. It was found the quality of Thailand's education system in the world was at 78 from 144 countries. When comparing with the ASEAN countries, Thailand is on the 8th ranked below Singapore, Malaysia, Brunei Darussalam, Philippines, Indonesia, Cambodia, and Vietnam. (Schwab, 2013 : 436) This led to the urgent need of action for the development on education in preparation for Thai schools in managing teaching and learning for the ASEAN community. Therefore, it is important for educator in all levels; Ministry of Education, local educators, and particularly school principals realized the readiness in development and managing Thai schools for the ASEAN community.

The purposes of the study were to explore the readiness of school administrators in developing and managing Thai schools for AEC in central region of Thailand; and determine the problems and needs in developing teaching and learning management in schools for AEC in central region of Thailand. 160 school administrators in educational in central region of Thailand were participated in this study. The research instrument included the questionnaire related to the readiness of in developing and managing schools towards the ASEAN Community.

Theoretical Framework

The rationale of this study is based on the analysis of documentation from the previous research studies and intensive literature review on developing Thailand education system in recent years. First, the Regulations Rules and how to decentralize the administration and management of education in 2007. It comprised of 4 areas; Academic Administration, Financial Management, Personnel management, General Administration (Ministry of Education, 2007:29) Secondly, the development of the ASEAN Community Schools Board of Basic Education.

It consists of four main aspects; management and administration; development of teachers; the involvement and participation of people for promoting, and supporting for the ASEAN, and last is on quality of students. (Office of the Basic Education Commission, 2011) In addition, it also looked into “Knowledge Management” for the Office of Academic and Educational Standards Committee which consisted of eight areas; appointing the committee member in workforce planning, supporting for resources, planning of teacher development; establishing an educational networking; exchanging their activities; setting the supervision system; encouraging teachers and staff in schools to be a member of the AEC association or AEC teacher club; and summarizing and reporting the results of operational activities. (Office of the Basic Education Commission, 2012 : 15) By the three, it can conceptualize as a following figure.

The logo for 'iafor' is centered on the page. It consists of the lowercase letters 'iafor' in a light blue, sans-serif font. The text is surrounded by several overlapping, semi-transparent circular arcs in shades of blue and red, creating a dynamic, circular graphic effect.

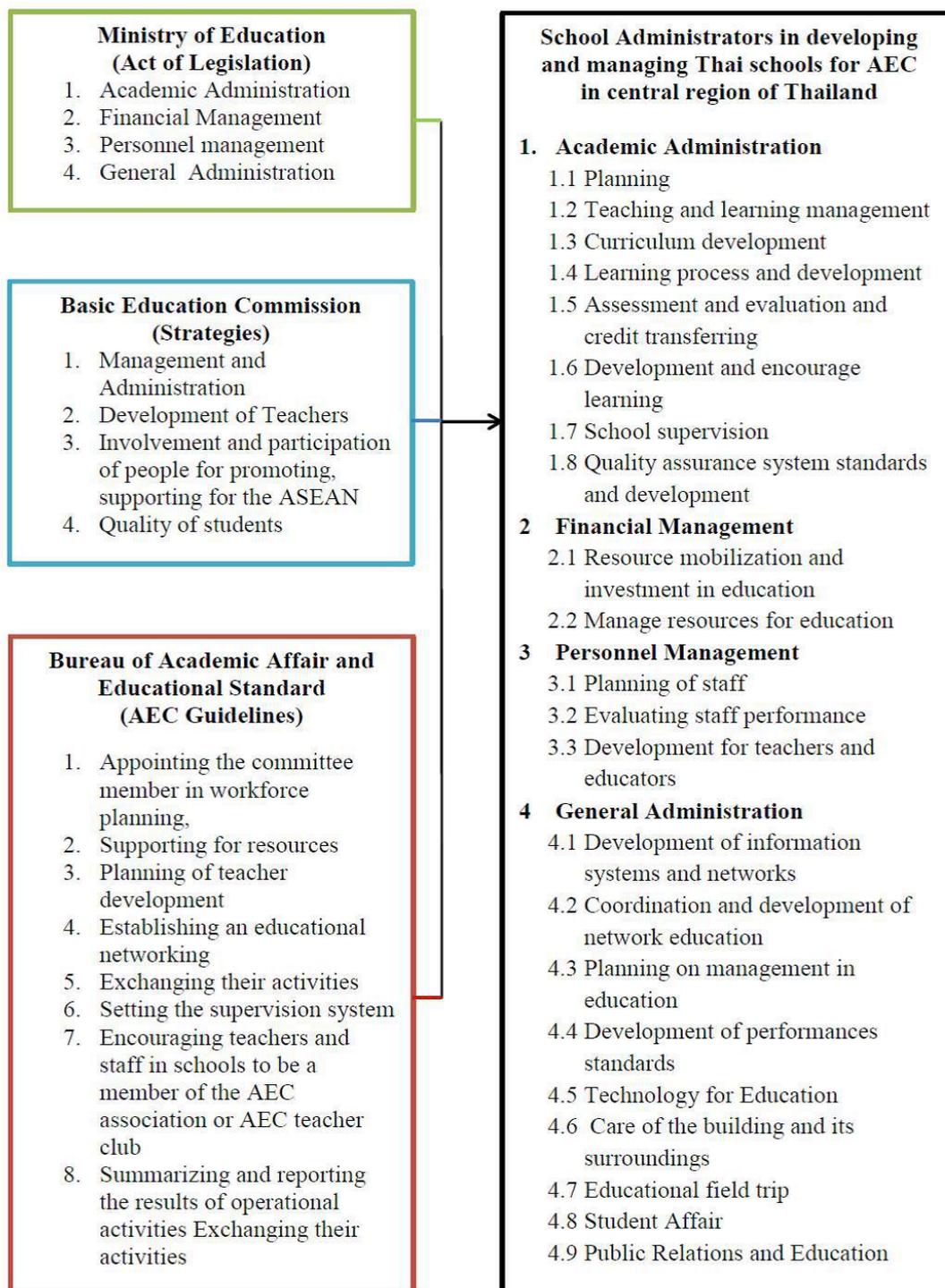


Figure 1: Theoretical Framework of School Administrators in Developing and Managing Thai Schools for AEC

Methodology

Research design

This research study utilized the descriptive research in order to get the large-scale phenomena on the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand and what problems and needs of school administrators in developing and managing schools towards the ASEAN Community. The sample was 160 school administrators who currently worked as a school principle in different provinces and districts in Educational Area Services central part of Thailand. Stratify random sampling techniques was used to select the sample. The questionnaire related to the readiness of in developing and managing schools towards the ASEAN Community was administrated during six months. The data obtained was analyzed to find out the readiness, problems and needs in developing teaching and learning management in schools for AEC in central region of Thailand.

Variables

Four variables in the study were focused. It included 1) academic management; 2) budget management; 3) personnel management; and 4) general administrative management on the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand.

Questionnaire

The questionnaire consisted of three sections. In part one, the school administrators were asked about their general information; gender, age, level of education and work experiences. In part two, they were rated their opinions on the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand. There were fifty-five items in this part. The Likert's scale was used to measure their opinions. The scales of 1-5 were as follows;

- 5 = strongly agree
- 4 = agree
- 3 = moderate
- 2 = disagree
- 1 = strongly disagree

The third part consisted of an open-ended section for obtaining the data on problems and needs of school administrators in developing and managing schools towards the ASEAN Community. The questionnaire was examined by the experts. The reliability of the questionnaire was checked using the method of the Coefficient Alpha of Cronbach. The data from the Likert's scale was calculated for the arithmetic means (\bar{X}). These means indicated the school administrators' opinions on the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand. The criteria of means in the questionnaire are from the principle of John W. Best (1970 : 190).

Mean scores derived from this scale were calculated and interpreted based on the criteria:

4.50 - 5.00	= strongly agree
3.50 - 4.49	= agree
2.50 - 3.49	= moderate
1.50 - 2.49	= disagree
1.00 - 1.49	= strongly disagree

The data obtained from the questionnaire in the open-ended section was labeled and coded so that the differences and similarities between all the answers were seen. Problems and needs on academic management, budget management, personnel management and general administrative management would be presented and discussed.

Results and Findings

The present study aims to explore the readiness, problems and needs of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand. 160 questionnaires were analyzed and organized into three parts as follows:

- Section 1: general information; gender, age, level of education and work experiences
- Section 2: Readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand.
- Section 3: problems and needs of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand.

Section 1

In the first section, the respondents to the survey were 127 (79.38%) male and 33 (20.32%) female school administrators and the average of age was 51 to 60 the most (127). The following average of ages was 41 to 50 (29) and the least average of age was between 30 and 40. For the level of education, it was found 108 (67.50) school administrators graduate Master Degrees, whereas 51 (31.88) were received Bachelor Degrees. One (0.62) was Doctoral Degrees.

Section 2

The questionnaire on the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand, was analyzed. The data obtained from the five-point rating scale was calculated for percentage, mean, and standard deviation. The result was presented in the table below.

Table 1: The result of school administrators on the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand.

Readiness of school administrators in developing and managing Thai schools for AEC in central region of Thailand	\bar{X}	S.D.	level	Rank
1. Academic Administration	3.15	0.13	moderate	2
2. Financial Management	2.98	0.27	moderate	4
3. Personnel Management	3.17	0.31	moderate	3
4. General Administration	3.23	0.19	moderate	1
Total	3.14	0.10	moderate	

As can be seen from the table, the data obtained reveals that the total mean score of the questionnaire was 3.14 (\bar{X} = 3.14, S.D. = 0.10). This value indicates that the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand, was in the moderate levels at all aspects. Considering each item, the average of general administration was ranked highest (\bar{X} = 3.23, S.D. = .019), following by personnel management (\bar{X} = 3.17, S.D. = 0.31), academic administration (\bar{X} = 3.15, S.D. = 0.13), and financial management (\bar{X} = 2.98, S.D. = 0.27) were ranked at last.

Section 3

In this section, the data obtained from open-ended questions of problems and needs of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand was qualitatively analyzed and presented according to four main areas; 1) academic administration; 2) financial management; 3) personnel management; and 4) general administration. The results in each area were revealed as follows:

1) Academic Administration

The development and management of school academic administration toward the ASEAN Community misled of directions; deficiency of teaching aids, media and educational tools to support the Asian study courses, no language courses of AEC Community members, as well as course credit-transfer manual guidelines for international students. Besides, the internal and external quality assurance in teaching and learning management toward the ASEAN Community was unclear and short of expert supervision in the area of the ASEAN Community. Therefore, the Office of Ministry of Education/ Primary Educational Area Services in central region of Thailand should provide the explicit handbook for school academic administration in leading the school towards the ASEAN Community, support teaching aids, medias and educational tools, build the curriculum for the ASEAN Community courses, arrange the handbook for the course transfer for international students, as well as assist the schools producing media technology to support teaching and learning.

2) Financial Management

School financial supporting teaching and learning management for the ASEAN Community was needed; however, providing such unplanned financial support to schools was limited and impossible. Co-operation of school net-working for co-financial support was necessary to do. It was suggested that the Office of Ministry of Education should support schools budget on teaching and learning management for the ASEAN Community and assist in building the school connection among the ASEAN school members.

3) Personnel Management

School teachers and staff seemed to lack of deep understanding of the ASEAN Community and their English language ability in teaching students. For example; Math, Science teachers cannot use English as a medium of instruction in their subjects. The Office of Ministry of Education should establish the policy encouraging teachers to improve their English language skills and also provide language learning tools for teachers and staff.

4) General administration

It was found that the strategic planning of the schools was indeed lack of directions and understanding of the ASEAN Community; unplanned financial supporting, and promoting on academic activities. The meeting among the Office of Ministry of Education / Educational Area Services was needed to direct the school strategy planning for the coming of the ASEAN Community and provide the major sources of the ASEAN Community to school, coordinating schools inside and outside countries and outward promoting the ASEAN Community. The leaflet, brochure or other kinds of printed materials of ASEAN Community would be publicized among Thai schools.

Discussions

Based on the findings of the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand overall, was in the moderate levels at all aspects. For each aspect, the average of general administration was ranked highest following by personnel management academic administration and financial management were ranked at last.

The general administration was ranked highest. This is because the general administrative management was the main tasks of school administrators. It comprised of strategic planning / school administrative planning, determining vision of learning management, summarizing the work performance, and publicizing for the public's mind as well as the development of information systems. The school administrators tends to apply these knowledge to their real life school administration including disseminate the knowledge of the ASEAN Community through leaflet, school letter, radio broadcast, local TV broadcast and etc. The findings agreed with many scholars (Renihan, Raham & Phillips,2003) which emphasized the importance of the new era management in strategic planning. Their work agreed with many studies. Suthiwaree (2013) developed the model basic school in the East to support the development of the ASEAN community and found general administration, personnel management, and academic administration were appropriate accordance to best practices in management in schools. Somruksa (2012) explored the readiness and guided development of teaching and learning for the ASEAN community and found that school administrators have disseminated the knowledge of the ASEAN Community to schools.

The readiness of the school administrators in developing and managing schools towards the ASEAN Community in term of financial management was ranked at the least. This is because Most schools have limited in financial budget and not enough for managing teaching and learning about ASEAN Community, especially the budget providing for the small size school. With these reasons, school administrators could not run activities promoting the ASEAN Community. This result is congruent with

the study of Buayaem (2013) that the financial management preparation for the ASEAN community for Secondary School in Rayong Province had the average at the low level of all aspects.

Conclusion

This study aimed to explore the readiness of the school administrators and determine the problems and needs in developing and managing schools towards the ASEAN Community in central region of Thailand. 160 school administrators who currently worked as a school principle in different provinces and districts in Educational Area Services central part of Thailand participated in this study. To serve the purpose of the study, the four areas of academic administration, financial management, personnel management and general administration were focused. The questionnaire was employed. The study yields the Office of Educational Area Services in providing the explicit school handbook for the AEC, supporting the teachers teaching aids, medias and educational tools. Creating the curriculum for the ASEAN Economic Community course, making connections among the schools in nations and school partnership of the ASEAN Economic Community members are necessity.

Recommendation of the Study

The results and the interpretation of this study lead to many recommendations as follows:

- 1) The result of the readiness of the school administrators in developing and managing schools towards the ASEAN Community in central region of Thailand indicated that financial management aspect was at the lower level of all aspects. Therefore, it was suggested that urgent financial support from Ministry of Education/ Office of Educational Service Area for developing and managing schools towards the ASEAN Community in central region of Thailand is needed.
- 2) The result of the study shows that academic administration was at the moderate level which was lower than general administration aspect. School administrators and supervisors training on ASEAN Community knowledge and activities are suggested to step forward ASEAN Community.

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***Material Selection, Design and Construction through CALL:
EFL Teacher Reflection***

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Abstract

The commercial software for English language learning in a computer lab has recently been implemented as part of practice hours in English Foundation courses for nursing college students. Regarding the results of course evaluation surveys conducted by the department, it was found that the contents in the software was not relevant to the course objectives and it was hard to find connections between the course contents and the future language needs of the students in nursing profession. As a result, English Foundation course for practice hours needs to be revised. As it is hard to find the English language commercial software that meets the requirements for nursing students, the researcher, EFL teacher was interested in designing and developing Computer-Assisted Language Learning (CALL) lessons to use for the course. The lessons were content and language integrated, taught through task-based activities on CALL platform. The study provides the details of the three major steps of material selections, the design of CALL English lessons, and the construction of CALL English lessons. The reflections of the problems and the solutions which EFL teacher as a developer came across throughout the process were reported.

Keywords: Material Selection/ Design/ Teacher Reflection

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Introduction

Designing English language instructional materials for specific profession through Computer-Assisted Language Learning (CALL) Lessons gain more popularity in language courses due to the effectiveness of increasing students' language proficiency and motivation. CALL Lessons can reduced students' anxiety and also promote individual learning. Recently, the Department of English has implemented students using commercial software in a computer lab as a part of practice hour's in general English courses for nursing students. The current software focused on language skills for general communication rather than for academic and professional purposes. This set-up can be considered counter-productive especially for professional nurses. Regarding the results of course evaluation surveys conducted by the department, it was found that the contents in the software were not relevant to the course objectives and it was hard to find connections between the course contents and the future language needs of the students in nursing profession. As a result, English foundation course for practice hours needs to be revised. As it is hard to find the English language commercial software that coincides with the foundation English course for nursing students, the researcher, EFL teacher was interested in designing and developing CALL English lessons to use for the course. The lessons were content and language integrated, taught through task-based activities on CALL platform. The particular language discourse for communicating at hospitals was emphasized in each lesson.

This research study aimed to develop effective CALL English Lessons for Nursing Science Students. It was guided by the research questions of what challenges were encountered by an EFL teacher as a CALL developer. The qualitative research method was employed and researcher's journal was used in order to record any challenges and direct experiences researcher came across and CALL Lesson development process from an EFL teacher as a CALL developer were reflected. Many challenges would be faced by the researcher who was an EFL teacher and had fair knowledge of computer programs were recorded. It could be a good experience for other to see the possible difficulties a teacher may have while trying to construct CALL materials. The systematic journal-keeping by the researcher as the course developer, would provide a true understanding of the nature of the CALL design and construction progress.

Process of Developing CALL English Lessons

In designing and developing CALL English Lessons for Nursing Science Students, the researcher followed the three major steps including material selection, design of CALL English lessons, and construction of CALL.

Material Selection

A number of things needed to be considered when developing CALL English lessons, for instance, the content of CALL lessons, resources to support CALL lessons, pre-requisite skills and background knowledge, assessment techniques, and time allocation. In this study, the material development would be the first stage of overall process. It consisted of four steps which included: 1) identifying the instructional goals and objectives; 2) defining the scope of the content and language skills; 3)

selecting and developing content materials; and 4) specifying the instructional design and activities. The details were discussed in the following steps

The significant aspect that must be dealt with when developing materials is identifying of learning goals and objectives. It allowed the developer to create a clear picture of what and how to be taught. To design CALL lessons, the researcher studied the course description of foundation English curriculum for Nursing Students in order to define the instructional goals and objectives of CALL English lessons. The course objective was to enable nursing students to use English to communicate in their future career. In other words, it would help them improve their listening, speaking, reading, and writing skills to carry out different tasks in hospital settings. Stating learning goals and objectives before developing CALL content materials gives a sense of direction of the lesson of a course. Having clear objectives gives the teacher a basis for determining which content and activities are appropriate for the course.

The second step encompassed the incorporation of the language aspects and content learning. To scope down the content materials, several factors such as teachers, students and contextual variables should be taken into consideration (Richard, 2005). The researcher needed to work with a conception of needs determined by the institution and students' future career setting (Graves, 1996). To seek for the needs and interests of students in the course, initially the researcher researched the content from the textbooks and listed the hospital themes and topics based on the objectives of the course. These included the hospital admission, monitoring a patient, and discharging a patient. Then the researcher asked thirteen people - three nursing teachers (two Thais and one foreigner), three English language instructors (two Thais and one foreigner), five nursing students and two nurse practitioners from private and public hospitals, to ensure the content in CALL English lessons met their career needs. The useful comments and suggestions were provided for final decisions. Finally, two hospital themes, i.e., hospital admission and monitoring a patient were selected.

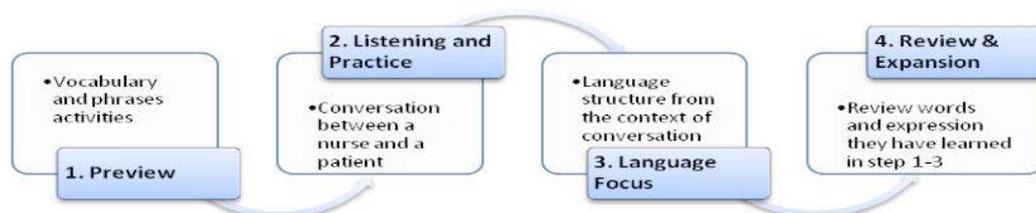
After breaking up the themes into the specific content, the target language needed to be determined (Graves, 1996). In this course, the objective language of learning was for communicating between a nurse and a patient at hospital wards. The language features in contexts, such as registering a patient, orienting a patient and family to the ward, giving and explaining the medication to a patient, and monitoring a patient's vital signs were covered. Each unit aimed to emphasize words and phrases for specific nursing activities. Various types of conversational situations were selected and taught throughout the lessons. Language skills focus and exercises were centered on communication at hospital settings.

In selecting materials for CALL English lessons, the criteria used by Kito (1989) emphasized the familiarity of the students' content background knowledge and their proficiency levels. In this study, nursing content materials and language skills were explicitly linked so the selecting and developing materials of CALL English lessons primarily depended on these mentioned factors. To do this, the researcher set up a students' characteristics form and had students fill in their information. Then the detail of students' previous learning of English courses, skills and their interest in language learning and learning styles were used to decide in selecting and developing content materials phase.

Regarding the content material for CALL, the researcher searched for and attempted to collect materials related to professional nursing from various resources. These included textbooks, commercial books, CD's, articles, magazines, internet websites, brochures, and information sheets from hospitals, supplementary activities, and other accessible content experts in Nursing Science. In addition, the existing in-house content materials could be selected. The combined resources were combined and exploited to meet the needs of students as well as their proficiency level in English language learning. In this step, it took researcher several weeks to find the materials that she wanted for each lesson because the content in nursing contained lots of medical terms, and the texts were very long for the CALL lessons and it would not be interesting to students. So, the developer needs to carefully choose the appropriate text for the language class. That means both difficulties of content and language should be taken into consideration at the same time. So, selecting materials to teach should be well- balance both nursing content and language itself.

CALL English lessons for Nursing Science Students primarily were developed on tutorial CALL activities to increase the effectiveness of English communication at hospital settings. The useful words and expressions employed in communication between nurses and patients were centered in the learning activities. The focus is on gradually building of content from simple to complex, from more close-ended, more open-ended, and from concrete to abstract (Grave, 1997). At this point, the researcher took advantages of the sequencing of CALL content-based materials and design, based on the building blocks which were gradually graded from the simplest language activities to the most complex ones. In addition, one task should be connected to another activity in a logic sequence of learning process. In the implementation of sequencing tasks to students, Richard and Rodgers (2001) and Skehan (1998) suggested that the tasks should contain clear criteria for the outcomes assessment, and assist teachers to manage learning tasks in a unit plan. With these ideas, the sequencing of tasks (pre-task, task-cycle, and language focus) by task-based language learning for CALL content-based materials would be beneficial for students. The illustration of the learning steps in each lesson was presented on the next page in the Figure 1.

Figure 1: Learning Steps of CALL English Lessons



As seen above, the formulation of CALL English lesson comprised four steps of learning practice. These included Preview, Listening and Practice, Language Focus, and Review and Expansion. The Preview step aimed at brainstorming the ideas for the lessons as a pre-task. It presented vocabulary and phrases activities relating to the topic and content which helped students to recall, and learn the useful words before listening to the conversations. For the Listening and Practice step, it focused on the

dialogues that modeled everyday spoken English between a nurse and a patient, and a nurse and a patient's family at hospital wards. In this section, the students could listen to various conversations as often as they wanted in order to complete the activities.

The following section was Language Focus. At this step, the target language structures in the context of each conversation were highlighted and practiced, starting from the controlled to open-ended exercises to make students aware of the use of the correct English sentences. The last step was Review and Expansion. This step focused on the elements of conversational English related to what they had learned in the previous three steps. Revision and Expansion was the follow-up to the lesson and reading associated nursing contents was also included for the revision. It is hoped evidence that a coherent instructional unit and activities can help students connect language content from different angles, and understand the relationship between the parts and the whole lessons. Moreover, well-graded activities and well-selected materials can lead to challenging and motivating material.

The Design of CALL English Lessons

After the content-based nursing materials were designed and developed, the next step was to deliver the task to a computer program. At this step, the design phase of CALL was considered to be extremely crucial, because CALL application envisaged an important role for the teacher in monitoring students' language learning performance and progress (Jayachandran, 2007). Therefore, the design of CALL needed to go beyond the language theory when implemented. Chapelle (1998, 2001) provides some key considerations for designing a CALL program that follows the models of second language acquisition. In this phase, the blueprint for the entire CALL lessons in the form of the delivery system software, content outlines, screen templates, flowcharts and storyboard. Also, it presented design guidelines and recommendations for structuring and formatting of the CALL English lessons. The flowcharts, screen design and storyboards need to be done in the designing stage.

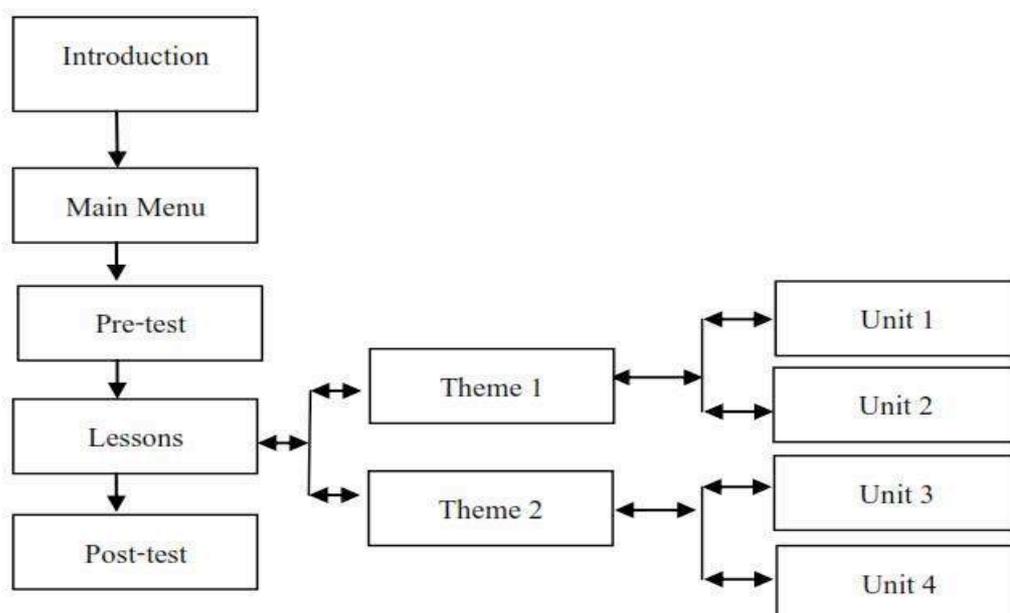
Regarding the development of CALL English lessons, the researcher studied the application of educational software programs from various resources, and the capacity of the computer hardware in order to produce effective CALL English lessons. The researcher explored available various types of computer software from various sources extensively. and found that the Adobe Captivate was the most popular software, at that time. Moreover, it was suggested by many scholars (Daughterty & Russo, 2007; Braun, 2007; Gervasi, Murgante, and Lagana, 2008) that it was a suitable and effective educational software program to create such computer lessons. The reasons were because the software was developed for the use of most educators in producing e-learning. It is a new and easy tool for creating computer lessons and can also be incorporated into a tutorial CALL.

In addition, it is compatible with media elements, images with the Adobe Photoshop and other types of program files that the researcher can open and edit using those applications, when needed. Importantly, the computer software can also track and report students' learning throughout the program. With these advantages, the researcher, as a course developer of CALL decided to choose the Adobe Captivate, the latest version for producing CALL English lessons. In this study therefore, the researcher used her personal computer to create the CALL English lessons, the

computer hardware needed to meet the system requirement of the program in order to work it effectively. Briefly, selecting computer software to deliver system of learning activities must be taken into a careful consideration because the software should optimize students' chances in interacting with the content, engage in activities, and develop competence with the foundations of learning, and it should help determine learning outcomes. Deep understanding of the relationship between the applications of computer software and desired learning activities in CALL, allows a designer to support student learning in creative ways.

In designing CALL, the researcher initiated the flowchart to depict the sequence and structure of the program. There were two main sections in CALL English lessons - the introduction and the main menu. The introduction comprised the information of CALL English lessons, including the title and objectives of the course. The main menu consisted of "Home", "Pre-test", "Lessons", and "Post-test" that could link the two themes. Each theme contained two lesson units.

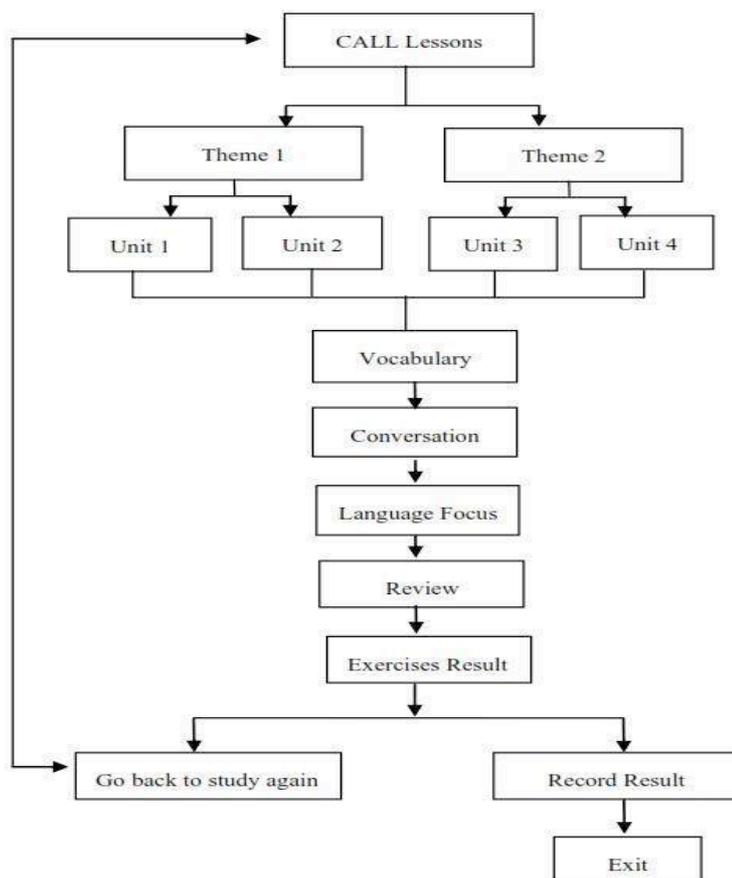
Figure 2: The Flowchart of the CALL program



For more detail, a diagram of CALL English lessons was created to indicate the sequence of the frames which appeared on the screen from the beginning to the end of the lessons. In the use of CALL, every student needed to install the program to their PC at the computer lab, start the lessons by taking a pre-test, and then study in each CALL unit by following the learning steps provided, until the end of each lesson. The feedback from each exercise was provided for students to self-evaluate their learning. The result of each exercise was shown at the end of each lesson for students to see if they were satisfied with their learning scores, so they could either choose to go back to the lesson and study again, or record their score results and exit the program. With the help of feedback provided after answers were submitted, it was found that students were encouraged to redo the exercises until they were satisfied with their scores. This actually helped them remember the words and structures presented in the lessons. The

Flowchart could depict the route for the lessons to go via the computer software program.

Figure 3: The flowchart of CALL Themes and Units



The next thing to consider after the design of the flowchart was the look and feel of the screen that is used in the project. This includes defining the color scheme and location of graphics, icons, audios, buttons and check boxes. The effective screen design should reflect balance among learner attributes, content factors and processing requirements of the learning tasks, and should maintain learners interest (Stemler, 1997). In this study, each CALL unit contained the primary functional areas based on the purpose of each screen including title, instructional text, the graphics, feedback, icons and navigation options.

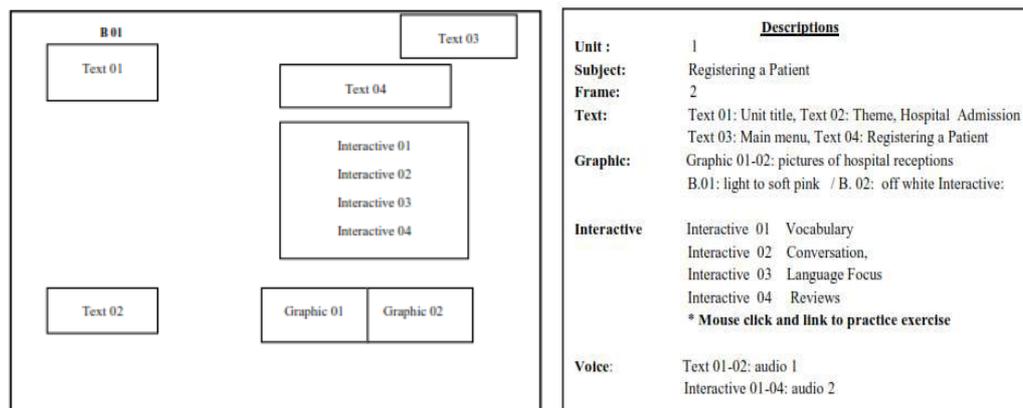
In the CALL unit, the title of each screen is located at the top of the page and shows the unit title. The text is on the right above the graphic while the feedback, icons and navigation options are on the bottom. However, the tiles of the menu screen and question screen design are slightly different in the functional areas. It contains the directions and questions, answer choices, graphics and pop-up dialog for the feedback. The unit title and the learning steps is on the top, while the text of questions and answer options were under the graphics. The feedback text is down below the answer, and the same icon box consistently appeared on the screen for the listening section.

Figure 4: the Screen Design



After the content had been outlined and the screen designs had been determined, the researcher started drawing a square on the paper with the detailed descriptions of what should be in each frame in lessons. The detail includes the Unit number, subject, and frame, text, graphic, interactive, and sound. The outlined descriptions helped the researcher organize the ideas before creating the actual CALL English lessons, seeing the sequencing of the whole lessons systematically. The example of the storyboard was presented in the figure 5.

Figure 5: The Storyboard of the Main Page

Screen Template**Development of CALL Lesson Unit**

To develop the elements of CALL lessons, audios, graphics and images, instructions and directions, questions and texts should be taken into account. For completing CALL English Lessons, the segments of the audio, pictures, and types of questions were outlined. The following were the details of the elements which the researcher intended to include in CALL.

The researcher prepared a script of both written and spoken texts read by a native speaker. To make the lessons more interesting, the audios were added to CALL English lessons in parts of the directions, the pronunciation, the conversations between a nurse and a patient, and the feedback. The audio scripts were read and recorded by both male and female native speakers. The audio files were exported to be MP 3 files. After that, the process of editing and adjusting the sound was employed to make the audio clearer using the audacity software sound editor.

The pictures are visual aids that can be very effective, meaningful and authentic if used in direct correlation with the lesson. In this study, collected the pictures from various sources were used. These included the picture dictionary, pictures from picture stocks, and pictures from the university nursing station. In order to get authentic pictures for CALL English lessons, a picture of the nursing activities and rooms, and medical instruments at an authentic place were taken to make it fresh and interesting. For this case, the researcher used College of Nursing as the setting for the picture of CALL English lessons.

The tutorial of CALL English lessons were aimed to train students' language use in communicating at hospital wards. To make the training hour meaningful for students, the teaching contents and graded quizzes were created including several types of questions. For designing the learning activities, several researchers (Pica, Kanagy, & Falodun, 1993; Larsen-Freeman and Long, 1991) suggested that the learning activities, by using a mouse click or filling the blanks would lead to an increase in successfully negotiated interactions. The learning activities in this study included the multiple-choice, Fill-In-The-Blank, Short Answer, Matching, and Sequencing. Through the software system, the researcher could control what happens to the learner

answering questions correctly or incorrectly, and also could track their progress in learning. To develop the learning activities, the texts and the correct responses to layout the instructions in each exercise were written, and noted the feedback for correct and incorrect responses for the beginning and ending activities and lessons, and then produced them. The flowcharts and design when and what kind of interaction would occur between the computer and student were made to see the process of learning.

Having the audio recordings for lessons, images, and question slides, the next step was to combine the pieces of media into a frame design with the software program to present CALL English lessons. To ensure CALL English lessons for Nursing Science Students are purposeful, the alpha testing was employed. The researcher had experts in the area of nursing content, educational technology and English language teaching to validate the CALL English lessons. The evaluation checklist form containing the topics of content and presentation, graphics, sounds and instructions and learning management system, were assessed for the quality of the program (Johnson, 1992). The researcher revised the CALL program where needed, according to the evaluation results and experts' comments.

Discussion and Conclusion

ESL Teacher as a Course Developer

From data discussed above, the researcher learned that the development of CALL English Lessons for nursing science students has several unique characteristics which set it apart from the development of general language teaching materials. The CALL English Lesson development process is complex, containing several steps that require the researcher's collective experiences, knowledge and skills. These include: the knowledge of English language teaching and learning theory, content knowledge of other academic disciplines, knowledge of the learning principles of CALL and understanding available computer software programs and skillfully using them. Moreover, the development process of the CALL program of study was very time-consuming but well- worth the effort. Each characteristic is discussed in detail in the following sections.

A Material Development as a Complex Process

The development of material for class teaching is understood as a linear process and having systematic sequences which involve a number of steps. The steps often start by setting the goals and objectives, conceptualizing the content, selecting and developing the materials and activities, organizing the contents and activities and ending by evaluation. These steps are widely-known and commonly used among course developers and educators in class material design and development. Unlike in the development process in content-based learning materials via the computer lessons, with CALL English Lessons for Nursing Science Students, the material development process is more complex than it seems and every step needs to be presented in great detail. In other words, the complexity comes from the three phases of the development process of CALL English Lessons for Nursing Science Students. The first phase was to develop the content material in nursing science. It is hard for this researcher because she does not have the background knowledge in nursing science. Therefore, consultation with content experts needed to be done, frequently, in making every single decision concerning material content selection. The second phase was to

design the materials for the use of CALL English Lessons. The researcher found that designing the computer lessons was much different from doing it on paper. The screen design, drawing the flowcharts and storyboards was not easy and could take an hour to finish. The third phase was to construct CALL English Lessons. It was found that inserting each media item into the layers of the template was difficult and had to adjust the timeline display of each screen. Dealing with technical problems made progress more difficult. In addition, each phase had its own principle and idea in creating them. Also, it often happened that there were some reverse steps within each phase.

Needs of ELT Knowledge, Content Knowledge and Computer Skills

Several tasks and steps in developing CALL require researcher' collective experience, knowledge and skills to deal with the issues which were encountered during the process of development. These experiences include ESL material development, extended experience with commercialize materials, i.e., Nursing Science, the knowledge of English language teaching and learning theory, content knowledge of other academic disciplines, the learning principles of CALL, computer skills, and knowledge of the computer software programs. Lacking any of these domains could lead to this project not being completed. Meganathan (2008) also supports this finding. "... lacking an understanding of material process would not only find it difficult to develop materials but also would find it much difficult to deliver them to an effective manner" (page7) In the development of content-based materials in nursing science, the developer should have knowledge of the content of other disciplines and an understanding of the specific language features of the target language. Medlin (2009), Arakelian, Bartran and Magnall (2003) assert that the language in a hospital setting is comprised of register, jargon and lexicon containing the technical language of a special field. Many words are used in the hospital have a special meaning, i.e., negative (a good test result), drip (an intravenous medication), rhythm (heartbeat). This type of language would assist the researcher in identifying language form in order to explain the usage for students.

Another point the researcher wants to convey is that the developer's ability to use educational software programs in creating multi-media materials is extremely necessary. It required lots of experience and knowledge of designing and developing CALL materials. Self-study and self-practice may be not enough to creating the CALL program of this study. Special training of the ELT teacher in the use of educational software may be beneficial at least to understand the principles, application, and basic computer skills and in bringing them to construct their own materials to teaching class, as expected.

Time-Consuming

Material development is complex and time consuming (Markee, 1997; Tomlinson, 1998; Seepho, 2002). In this study, the researcher spent about 7 months developing CALL English Lessons. As mentioned earlier, the development of CALL English Lessons consisted of multi-steps and the reverse steps —often coming between steps in the process —that needed the researcher's time while revising the content materials. For instance, when the researcher needed to shorten the text length, adjust the sound volume, or even customize the screen templates, it was not easy to accomplish due to the location of the objects and frames. In fact, each CALL unit contained about 60-85 frames of task activities. Making minor changes during the

process increased the time to finish them. Besides the phase of development, this researcher's time was spent getting to know the software application because inexperience using computer software programs could lead into the ineffective CALL. It is necessary for a researcher to have the computer skills required to handle unexpected issues or technical problems that may be encountered. Therefore, most of this researcher's time was devoted to study the tools and the tricks of computer software programs, and put them in practice. It took this researcher several months to master the programs, prior to the construction of CALL.

Conclusion

From the beginning phase of the development process of CALL, to the end, led this researcher to conclude that producing CALL materials requires not only the knowledge of English language teaching, content knowledge or computer skills but also possessing creativity, and experience in the architecture, design and development of both content specific materials, and Computer-Assisted Language Learning materials. Moreover, the materials developer needs to have an understanding of the nature of the course, and be able to adapt and adopt the materials to his/her own teaching.

EFL teachers can be CALL developers. However, to lessen some technical challenges, they should be trained in the following areas: a) CALL principles for foreign language learning; b) how to use some practical authoring software; and c) how to design and develop effective CALL lessons. Without basic knowledge and skills in computer programs, the lessons can be very dry and not attractive enough to attract the students' attention and the production process will be unlikely to succeed.

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*A Story of a School Development Program in the Heart of Borneo,
Kalimantan-Indonesia*

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Abstract

The purpose of this research is to portray the changes in schools during the implementation of Education for Sustainability Program (ESD) in The Heart of Borneo (HoB)-Kalimantan. During 2008-2013 WWF-Indonesia developed ESD program by conducting training and mentoring for schools among 10 regencies in HoB, Kalimantan area. There are 34 schools are under WWF-Indonesia supervision. The schools obtained assistance in form of training for school improvement and the value of education for sustainable development. Within 4 years, WWF-Indonesia has been running the program, there are many changes occurred in the schools. Using the quality criteria regarding the quality of teaching and learning process, this study describes the changes happened in schools such as the use of variety of learning approaches, the use of local resources for teaching and learning and the development of teaching philosophy among teachers.

Keywords: education for sustainable development, teaching and learning, school

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Introduction

Borneo, the third largest island in the world, is well known for its rich natural resources, such as forest, coal, gold, and oil. Mario Rautner (2005) on his report on Status of Forest, Wildlife and Related Threats on the Island of Borneo, stated that Borneo is *a land of plenty*. In other words, it is a rich land that has a lot of things. The threat that was mentioned by Rautner refers to the loss of its biodiversity from time to time. For instance, based on the data from satellite observations, World Wide Fund for Nature (WWF) reported 56% or about 29,000 kilometers of protected forest in Borneo has been cleared for oil palm plantations and land conversion (Rautner, 2005). To maintain Borneo island, and to ensure the governance of the island conducted effectively, three countries (Indonesia, Brunei Darussalam and Malaysia) in the area of Borneo island signed an agreement to undertake positive activities to keep it safe. The agreement was signed in 2007 and called the Heart of Borneo (HoB).

During 2008-2013, WWF followed-up the agreement by developing Education for Sustainable Development (ESD) program to conduct training and mentoring for schools among 10 regencies in the HoB area, namely: Katingan, Murung Raya, Gunung Mas, West Kutai, Sintang, Melawi, South Barit, Kapuas Hulu, Nunukan and Malinau. In each regency, the schools were built and assisted by WWF-Indonesia prior to be the learning center for other communities and schools around the areas and to inculcate the values of ESD as part of the effort to save national natural resources.

There are 34 schools in total that are under the guidance of WWF-Indonesia. During a period of time, the assisted schools were receiving assistance in the form of training for school improvement, and the value of education for sustainable development. The ESD program in the HoB was done through the implementation of *the whole school approach*. The whole school approach is a strategy to systematically improve all aspects of school quality. Within 4 years, WWF-Indonesia has been running the HoB program conducted in several schools in Borneo. By all means, there are many changes occurred in the schools. The aim of this study is to portray the changes in schools during the implementation of Education for Sustainability Program (ESD) regarding teaching and learning in schools.

Literature Review and Related Work

The Whole School Approach in Education for Sustainable Development

The Whole School Approach basically aims to integrate the principles of sustainable development in formal education in a holistic manner. In other words, schools introduce the sustainable development principles not only through teaching and learning, but also through the operation and governance of the school, the involvement of stakeholders and the society, long-term planning, monitoring and evaluation, as well as involving the whole-school community to participate actively for sustainable development (Hargreaves, 2008). According to Steele (2012), the implementation of the whole-school-approach will result in teacher and students involvement to solve real life issues and problems; provide opportunities to achieve the objectives of curriculum; endorse the involvement of school community; less consumption of the natural resources; improve school facilities; reduce school procurement of new tools and resources; and expose school a role-model for local

community. The ESD program in the Heart of Borneo (HoB) was done through the implementation of the whole school approach. The whole school approach is a strategy to systematically improve all aspects of school quality in area of school culture and ethos; teaching and learning; pupils; community; school estate and monitoring and evaluation. Changes are likely to occur in school system who implemented the whole school approach. To describe the changing phase in an organization in the school, Larson (2011) uses these three phases:(1) mobilization phase, the phase when the new school begins to reorient within the school system; (2) implementation phase, the phase when the school implements the changes that were made; (3) institutionalization phase, when the school system has changed and the innovation has likely to become the regular routine in the school. According to Larson, those three phases will occur at different times and involving different people. If the institution has reached the institutionalization phase, it will be encouraged to produce new thoughts or perform a new mobilization that lead to the next phase.

The whole school approach highlights teaching and learning as one of important aspect in the success of Education for Sustainable Development. It cannot be denied because school has enormous role in sustainable development. In 2002, the United Nations proclaimed the Decade of Education for Sustainable Development 2004-2014. The idea was all countries should adopt this perspective and develop a teaching characterized by a multidisciplinary and holistic approach. Thus, pupils were to be encouraged to develop critical thinking and hold responsibility in the school. Teaching and learning in school should result in understanding about the current condition of the earth which are biodiversity loss and growing ecological footprint; also produce actions competence for sustainable development such as acquiring skills and knowledge to participate in the development society, increase knowledge to change our way of life etc.

In response to this, WWF (World Wide Fund for Nature) introduced six pillars that Education for Sustainable Development (ESD) is based upon. These pillars are rooted from the UN Decade of ESD and underlying the characteristics of learning for sustainable development. They are (1) Lifelong learning means learning should provide an opportunity to rethink and think a new way for adopting new strategies, valuing the process instead only focusing on result; (2) Learners in focus means allowing individuals to create their own knowledge as result of learning and interaction with others; (3) Holistic approach means teachers should be able to promote interdisciplinary and subject integration and also able to link issues of ecological to other issues e.g. social justice and economic sustainability;(4) Democratic work methods means students should be given the opportunity to influence school or local communities by providing certain skills such as proposing questions, formulate and analyze questions etc.; (5) Different perspectives mean teachers should teach critical thinking collaborative and cooperative learning. Also using schools, local educational institutions, surrounding community and nature as learning resources; and (6) Reflection means teachers should teach and practice reflection skills.

The six pillars are also in line with the quality criteria regarding the quality of teaching and learning process developed by Breiting et.al (2005) for ESD schools. Breiting et.al (2005) explained nine areas that cover the quality criteria regarding the quality teaching and learning process. They are (1) Areas of teaching-learning approach; (2) Area of visible outcomes a school and in local community; (3) Area of perspectives for the future; (4) Area of 'culture of complexity'; (5) Area of critical thinking and the language of possibility; (6) Area of value clarification; (7) Area of action-based perspective; (8) Area of participation and (9) Area of subject matter. These areas are developed based on the idea that sustainable development is not a fixed matter.

It is a quest for improving our daily life and communities that benefits people now and in the future and also minimizing our negative environmental impact. Therefore, it requires citizen to be proactive, creative and able to combine theoretical knowledge with practical innovations and ideas. Consequently, teaching and learning approach in school should be able to develop those skills by creating student-centered learning, giving students opportunities to grow their own ideas, values and perspectives and experiencing experiential learning. Teachers should create learning environment that enable students to cultivate those skills for instance by integrating subject taught in the classroom with issues in the local community, encouraging cooperative and experiential learning and introducing ESD issues through engaging activities

Methodology

This study was conducted in three provinces in Kalimantan namely (1) Central Kalimantan included Katingan and Murung Raya district; (2) East Kalimantan included West Kutai district and (3) West Kalimantan included Sintang Melawi district. A number of respondents involved in the study were recommended by WWF-Indonesia with some considerations such as the level of progress of schools and convenience access to visit the school location. The following table is a description of respondents.

Table 1: Kinds and Number of Respondents

Group of Respondents	Central Kalimantan	East Kalimantan	West Kalimantan
School	2	3	2
Teacher	25	20	6
School Principal	6	3	2
Local Society	13	15	-
Governmental representative	-	5	-
Students	12	18	10

The method of data collection was conducted through questionnaires, interviews, document analysis of students' work and school observations. The instruments were developed from quality criteria of ESD schools (Brieting et.al, 2005) and WWF Report of Sustainable School (WWF-Sweden). This study is aimed to portray changes in teaching and learning in schools. Descriptive analysis (of percentage) was performed to gain a true sense of changes in teaching and learning. The purpose of analyzing descriptive data was to gain insight regarding teaching and learning.

Meanwhile, participants' responses on open questions will add up to the whole discussion on quality criteria of teaching and learning process.

Result, Analysis and Discussion

Quality Criteria Regarding Teaching and Learning

The characteristics of teaching and learning for sustainable development consist of 6 cornerstones: (1) lifelong learning; (2) learners in focus, (3) holistic approach; (4) democratic-works methods (5) different perspectives, and (6) reflection. These six cornerstones become the basic rationales in explaining the quality of the learning process in WWF-Indonesia assisted schools in the Heart of Borneo program. These six cornerstones are reflected in form of interaction between teachers and students, the use of various teaching methods and the integration of ESD issues in teaching and learning.

During the implementation of the program, the changes were seen among WWF-Indonesia assisted schools. In the teaching and learning process, some of the teachers at the school started to use inquiry and exploration approach, such as using the surrounding ecosystem as the learning resources. The frequency of the inquiry and exploration usage can be seen on the results of the questionnaire given to the teachers. The responses were as follows.

- East Kalimantan: Always (58%); Often (5%); Rarely (5%), while the rest of the respondents did not respond to the questions
- Central Kalimantan: Always (24%); Often (52%); Rarely (20%).
- West Kalimantan: Always (50%); Often (25%); Rarely (25%)

The data in the three regions showed that most of the teachers who applied the inquiry-based learning or exploration were Science teachers. However, different results were found in West Kalimantan. Indonesian Language teacher and social Studies teacher were also applied those approaches. Here some comments from students about their experience of the inquiry-based learning

When the gravity lesson, we dropped the pen and the paper to see which one of those fell down faster.

We were asked to find anything around us according to our initial, then we made a poetry out of it.

For example, global warming. We saw the in-focus first then we were asked to explain it by ourselves.

Inquiry-based learning and exploration approach were widely used by the Science teachers because the topics allow teachers to discover extraordinary learning resources around the school. Science teachers were one of the many involved in the workshop held by WWF-Indonesia. Most likely they applied the approaches in the classroom after the trainings. Therefore, it was easily for them to apply activities. Thus, it appears that they could superficially implement the activities they have got from the training.

Besides applying some learning approach, teachers also introduced students to issues related to education for sustainable development, such as economic, environmental and social issues. The responses of teacher questionnaire were as follows.

- East Kalimantan: Always (58%); Often (21%). But the teachers did not explain the issues discussed in the classroom.
- Central Kalimantan: Always (24%); Often (44%); Rarely (16%); No answer (8%). Among other issues discussed in the classroom were about water, global warming, and traditional shifting cultivation, illegal logging and others.
- West Kalimantan: Always (25%); Often (75%), ESD issues were not explained further.

Those responses indicate that teachers have introduced or integrated ESD issues into teaching and learning. This was also supported by finding based on students' interview. They said that teacher often take them to the river nearby school area to have the firsthand experience in seeing the water quality condition, observing the plants, recycling the waste, and others.

The environmental issues are the most frequently discussed issues and mostly referred learning resources in the classroom. In addition, the utmost instructional practices in the classroom were also related to the environmental issues. This is generally given that Education for Sustainable Development (ESD) is ingenerated from Environmental Education. Likewise, a lot of people who support Education for Sustainable Development are mostly Environmental Education activists. Correspondingly, it is equitable that environmental issues become the introduction to convey the ideas of Education for Sustainable Development. Thus in the future, the essential thing to do is to promote and to integrate environmental, social, and economical issues as shaft of ESD.

The implemented strategies to integrate ESD issues need to be supported by various teaching methods. The result of the teacher interview gave the insight of the teaching methodology they have used to teach ESD related issues. Teachers in East Kalimantan and Central Kalimantan asked students to observe the environment around the school or their neighborhood areas. Over 63% of teachers in East Kalimantan, 100% in West Kalimantan and 71% of Central Kalimantan claimed that they had started using the school yards as an instructional media in the teaching and learning process. This was also supported by the students' interview.

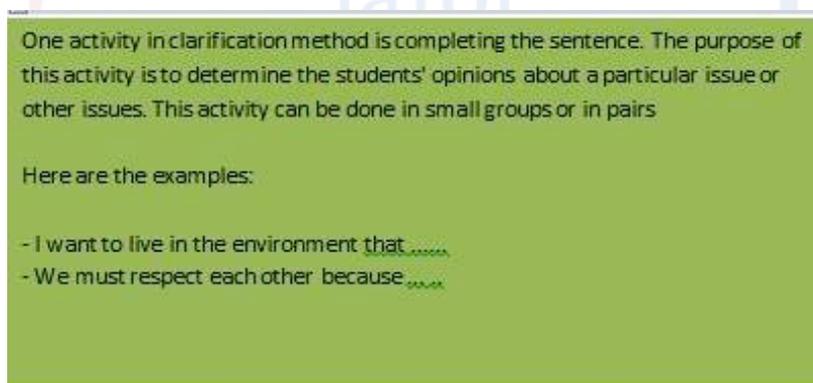
However, some students perceived that most of the teachers never gave the concrete examples about the lessons that could be seen from their everyday life. For instance, connecting issues in social, economics, and cultural that are recently heard among the society. In West Kalimantan, about 33% of the students stated that teachers often conducted those activities. A group of students in West Borneo stated that teachers put on the example of the mining companies in their region where illegal logging occurred and made the areas became arid and hot. Furthermore, students in Central Borneo claimed that only a few teachers who put on such examples, such as by getting students learning outside of the classroom to see the examples in the field on local-content subject (environment). Here are some of the statements of the teachers:

Teaching and learning process no longer becomes monotonous. In the past, the teaching and learning process was always conventional in the classroom, now not anymore. In learning about the plants, for example, now we bring the students to go directly to see the nature. Previously, we had never thought to do so. Today, this can also done to teach all subjects, not limited to teach science alone.

In 6th grade, I already started practicing, teaching math in so much fun, where students do not only sit. For example, in learning about fractions, I invited the students to play, or I use the real money ... the class becomes more alive and fun.

Teachers no longer ask the students to write on the board, while the they leave the classroom and go outside to do other things.

The implication to the teaching and learning was that most teachers encouraged students to go outside of the classroom to observe the surrounding environment. There was nothing wrong with such way. However, not all issues can be taught by the same way. Indeed, there is no learning method specifically designed for teaching lessons related to ESD issues. However there are several methods of learning that can be used in ESD, such as value clarification method, forum games, role playing, study cases, problem-based learning, debate, discussion, problem solving and storyline. These possible methods can be introduced to teachers, through training so that they can enrich their teaching methodology in the classroom.



The interaction between students and teachers in all three regions showed interesting phenomenon. The results observed in three regions, namely Central Kalimantan, West Kalimantan and East Kalimantan showed that most of the students have high self-confidence. It was showed by their prompt respond to answer questions during the interview and the attitude shown during the visits in the classroom. Students' behavior and attitude in the classroom indicated that teachers gave students an opportunity to express their abilities, both as an individual and in-groups, in the classroom. Activities such as group work, opportunity to choose and ask questions helped students to grow those attitudes and behaviors.

The result of interviews and questionnaires in the three regions showed 63% of students said they often work in groups. The result was also supported by the teacher questionnaire:

- East Kalimantan: Always (58%); Often (32%).
- Central Kalimantan: Always (60%); Often (36%); Rarely (4%).
- West Kalimantan: Always (25%); Often (75%)

Another factor that supports changes in the school was the teachers. In some schools it appears that the teachers who were active or are involved in the training of WWF-Indonesia has shown a different quality than the others. For instance, teachers now use variation of the methods or approaches in the teaching and learning process in the classroom. Ideally, in one school, every teacher has the same quality. The absence of a mechanism to associate the dissemination of the training results to the other teachers has caused differences in teachers' skills or abilities. Thus, it is necessary to formulate the effective dissemination mechanism of the training results in each school to make the mentoring program sustainable.

In addition to the dissemination mechanism of the training results in the school, other fundamental thing to be acknowledged by the teachers is to have the teaching and learning documents or commonly known as lesson plans. By recording the lesson plans to be used in the classroom, the teachers can learn new things, which is hopefully to be interesting and innovative. It was not surprising in several schools under WWF-Indonesia assistance; there were only a few teachers who attempted making different teaching and learning approaches. Those were the teachers who happened to attend the training. These teachers also were only teachers who developed the lesson plans. The lack of supervision of the school boards to the teachers has led most teachers failed to record the lesson planning

Conclusion and Future Work

This study sought to portray changes happened in schools during the implementation of Education for Sustainability (ESD) program in The Heart of Borneo (HoB)-Kalimantan. The results of the study informed that several schools have shown a great progress in integrating ESD issues in the teaching and learning, but generally the issues that were raised were the issue of the environment and did not really rely on many affective aspects (values, moral) of the activities that were carried out. Some teachers also were using variety teaching methods and utilize schools' surroundings as learning resources. ESD program has made a major contribution to improve teachers' professional development and at the end influencing school qualities.

There are few things that need to be improved in the process of learning and teaching related to ESD in schools such as developing teaching methodologies that are suitable to integrate ESD issues, various assessments, and the integration of the local issues. Moreover, with the implementation of new curriculum 2013, many changes will occur in the teaching and learning process in the school. Thus, it needs to be considered to give the schools the training planning. Training materials should be developed in stages, in accordance with the level of its complexity. It is also suggested that the

school provides the time to have a mentoring program for the teachers, so the development can be seen. In addition, schools can involve other parties, such as NGOs, school communities, etc. in identifying local issues in their respective areas. This was seen as successful act in helping the schools to enrich local issues (in addition to environmental issues).



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University/NGO Cooperation on Small-Scale Education Projects: Nursery School for North Dagon Township

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Abstract

Although Myanmar is now enjoying rapid economic growth, its education standards are lagging far behind. To grow strong as a nation, empowerment must be given to the younger generations through a more comprehensive and accessible education system starting with the youngest among them, the preschoolers. This presentation introduces a project to establish a nursery school in a less privileged district of Yangon, Myanmar, lacking education opportunities and with many young children left by working parents playing in the streets. The process of setting up the nursery school started when an educator in Japan contacted the local office of an NGO in Myanmar and proposed such a small-scale project. A dedicated group of residents, who had recently built a church in the same area, demonstrated their enthusiastic commitment to the project by the volunteering of needed time and resources. Accordingly, together with the NGO's local staff, a plan was formulated for the realization of school facilities and an innovative curriculum designed by a curriculum specialist. Teachers were hired and trained in the new curriculum. The school opened in 2013 with 20 students from 4 to 6 years of age. This year, 2014, the first graduation was successfully held. In order to ensure sustainability of the project, local community residents have formed a volunteer committee that cooperates closely with the teachers and students and their families in the management of the project.

Keywords: Myanmar, preschool education, curriculum, NGO, sustainability

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Introduction

Although Myanmar is currently enjoying rapid economic growthⁱ, its once-proud education system is lagging far behind due to decades of political conflictⁱⁱ. I mention “once-proud” because there was a period of time, following independence from British colonial rule in 1948, when Myanmar sought to create a literate and educated population, and was believed to be on its way to becoming the first Asian Tiger in the region. However, a coup d’état in 1962 isolated and impoverished the country. All schools were nationalized and educational standards began to fall. Since then, schools have often been closed due to student protestsⁱⁱⁱ.



Figure 1. Happy enrollee of newly established nursery school.

To grow strong as a nation again, empowerment must be given to the younger generations through a more comprehensive and accessible education system starting with the youngest among them, the preschoolers^{iv}. This presentation introduces a project to establish a nursery school in a less privileged district of Yangon, Myanmar, lacking education opportunities and with many young children left by working parents playing in the streets^v.

Statement of the problem

North Dagon Township is a division of Yangon, Myanmar’s largest city and former capital. According to Wikipedia, the government census in 2012 revealed a Township population of 81,000, with 24 primary (elementary) schools, 1 middle (junior high) school and 4 high schools^{vi}. Most people in this area would be categorized as office workers (white collar or middle class), and hard working. But one can quickly recognize the dire shortage of education opportunities for their children. The only available schools are far away, expensive and crowded. As mentioned earlier, Myanmar needs to move forward in improving its substandard education system,

beginning with providing access to the youngest^{vii}. The early childhood stage is susceptible and a salient part of a human's cognitive and physical development, and it is important to establish a solid foundation for children to be able to evolve a fruitful and productive life^{viii}.



Figure 2. Children lacking opportunity for early childhood education.

Description of project

A preschool more accessible for North Dagon Township residents was considered a solution to the problem. A Christian Church in the North Dagon Township that was established by local residents initially considered such a project when they heard of the possibility of funding available from a Japanese educator. The members started looking for a way to effectively utilize the church facility during the week when most churches sit empty. And, since the church is centrally located, yet in a quiet and safe area for children to learn, members started following through with the idea of establishing a nursery/preschool center that would be able to serve the community. With the help of experienced assistance, the church members were motivated to cooperate together and draw up a plan and proposal for funding from the small-scale education funding that was available.

Main components of activities

one month before the school began including lesson planning and classroom instruction.



Figure 3. Sign on wall of newly established nursery school.

Facilities and supplies

The earmarked church building consists of a large classroom and other necessary space for running a preschool that would otherwise lie unused most days of the



Figure 4. Students of newly established nursery school.

week. Necessary furniture included tables, chairs, mats, TV, DVD player, phone, Internet, laptop or desktop computer, printer, Xerox machine, fan, cupboard, white board, chart paper, flip paper, blank paper, markers, crayons, toys and a bulletin board. These were the primary needs when establishing the school.

Student admission

Students are accepted based on an interview of student and parent(s) together, and a small fee is charged for maintenance of school operations. Admission period is from May to June. The current capacity is limited to 20. In case there is a vacancy, admission of students in the middle of the school year is acceptable.

Contribution from the church and NGO

The North Dagon Christian Church contributed the building and facilities needed for the children to study and play, and the local office of the NGO monitors and administers support for activities as a whole like preparing the curriculum, supervising and providing general guidance.



Figure 5. First graduation ceremony of newly established nursery school.

Achieving sustainability

The school opened in 2013 with 20 students from 4 to 6 years of age. By the end of the first year, the first graduation ceremony was held for six 6-year-old graduates. The school was able to have a positive balance sheet due to careful planning, fiscal restraint and a supportive core volunteers.

Children are developing more disciplined study skills in addition to gaining a sense of hard work, responsibility, self-confidence and even improved community engagement. In order to ensure the long-term success of the project, teachers and staff are working closely together with committee members and other related persons, including the children themselves, in planning and implementing ongoing project strategies and measures.

Acknowledgements

I would like to express appreciation to Kyaw Aung Oliver, Adventist Development and Relief Agency, Myanmar (ADRA Myanmar) for his indispensable assistance.

Teacher recruitment and training

An international NGO, was responsible for recruiting and training 2 teachers with experience in teaching and, preferably, with a graduate degree in the education field. Another criteria was the candidate's willingness to work for at least a year and have a committed and enthusiastic disposition to ensure the students are taught in a stable and conducive environment. Teachers were trained by NGO staff in Myanmar.

The logo for the International Association for Educational Research (IAFOR) is centered on the page. It features the word "iafor" in a lowercase, sans-serif font. The text is surrounded by several overlapping, semi-transparent circular arcs in shades of blue and red, creating a dynamic, circular design.

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Higher Education Curricula for Sustainable Development

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Abstract

This paper considers the practice of higher education curricula for sustainable development under ecological crises. Therefore, the deficiency of an environmentally sustainable notion in higher education curricula is first examined based on the work of American educationist C. A. Bowers. Second, borrowing from the notion of deep ecology developed by Norwegian philosopher Arne Naess, I discuss the perspective of ecological significance, and how to develop a deep ecological attitude in university learning for sustainability. Third, drawing from the concepts of both Bowers and Naess, I elaborate on possible practices of sustainable development in higher education curricula, including defining the aims of sustainable education, exploring sustainable forms of cultural practice, developing an ecologically sustainable lifestyle, and formulating an interdisciplinary curriculum structure.

Keywords: higher education, curriculum, sustainability, ecology, sustainable development, Bowers, Naess

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Introduction

Because of the increasing ecological crises regarding complying with high industrial development, sustainable development has received growing attention worldwide. Growing awareness of sustainable development is evidenced in international conventions and national policies. Education plays a crucial role in promoting sustainable development processes, a view that is emphasised in the following statement offered by The United Nations Educational, Scientific and Cultural Organization (UNESCO):

Sustainable development cannot be achieved by technological solutions, political regulation or financial instruments alone. Achieving sustainable development requires a change in the way we think and act, and consequently a transition to sustainable lifestyles, consumption and production patterns. Only education and learning at all levels and in all social contexts can bring about this critical change. (UNESCO, 2012a, p. 13)

Accordingly, higher education is an educational level that can employ environmental innovation for sustainable development. Learners who are university educated may lead global ecological change. However, commercial logic has contaminated higher education, and economics has heavily affected its teaching and learning outcomes, fostering ecological crises. Simon Marginson (2014) observed that higher education institutes are expected to advance the global competitiveness of a nation by preparing and attracting knowledge-intensive labour. These institutes have unconsciously become educational instruments for economic improvement. Ronald Barnett (2014) warned that higher education has been framed within a narrow band of concepts, which has typically been associated with economics.

For sustainable development at a higher education level, Stephen Sterling and Barnett conceived the sustainable notion of the university. Sterling (2013) argued that socialisation and vocational goals do not account for the challenge of sustainability. Higher education requires a transformed educational paradigm. It provides vision, image, design, and action for achieving healthy societies and ecologically sustainable lifestyles. He argued that paradigm change is a transformative learning process, and defined the sustainable university as follows:

The sustainable university is one that through its guiding ethos, outlook and aspirations, governance, research, curriculum, community links, campus management, monitoring and modus operandi seeks explicitly to explore, develop, contribute to, embody and manifest—critically and reflexively—the kinds of values, concepts and ideas, challenges and approaches that are emerging from the growing global sustainability discourse. (Sterling, 2013, p. 23)

Sterling indicated that university curricula should produce innovative values, concepts, and ideas for leading sustainable development, particularly related to critical and reflexive perspectives. Barnett claimed that the *ecological university* is emerging. The ecological university is the university that ‘takes seriously both the world’s interconnectedness and the university’s interconnectedness with the world’ (Barnett, 2011, p. 451). According to Barnett, the ecological university cannot enclose itself; it is an institute ‘for the other’, where ‘the other’ is typically outside its campus. The ecological university functions in promoting world wellbeing, and helps to create a sustainable world. The students in this type of university can be identified as global citizens who are concerned about global development. They also understand their responsibilities in the world and towards the world.

Sterling and Barnett presented an imaginative blueprint of a sustainable university by discussing the possibilities of embedding the notion of ecology or sustainability into higher education. Following their proposal, this paper explores how a university curriculum can inspire students to understand their responsibilities for improving the world. Curriculum practice is an effective channel for transforming values, concepts, and notions of environmental sustainability. Proper knowledge of ecology is essential for conducting meaningful acts that prevent ecological harm to the Earth. Education takes responsibility for solving environmental problems and facing ecological crises. However, the meaning of sustainability could be limited to internationalisation, employability, and enterprise (Sterling, 2013). Similarly, the university curriculum has been narrowly manipulated for the purpose of job-obtainment, economic production, or operational capacities.

This trend is typically evident when ‘graduate attributes’ are formulated in university curricula (Barrie, 2006). This study primarily focused on developing a robust circulation of ecology by employing a broad concept of nature to substitute for ‘society’ or ‘world,’ which is narrow. The ecological learning related to developing ecological attitudes or values in higher education was explored in this study. Naess stated that studies ‘dealing with humans’ *deep attitudes* towards nature

and of how they could be changed... are neglected or not even seen as relevant in most schools, universities, or privately financed research institutions' (Naess, 2005, p. 19). The possibility for creating deep attitudes was the focus of this study. In higher education, sustainable education practices primarily involve changing the physical environment or guiding institutional sustainable management, and are rarely concerned with the cultural level of ecological practices. Spiritual growth concerning human interaction with nature has also received scant attention.

However, the intrinsic value of nature is a fundamental topic to be learned (or experienced) in university curricula. For exploring this notion, I first examined the deficiency of the environmentally sustainable notion in higher education curricula based on the work of C. A. Bowers, an American educationist who focused long-term attention on ecological issues. His work particularly explored the ecological crises in higher education. Second, borrowing the notion of deep ecology from Norwegian philosopher Naess, I discuss the perspective of ecological significance, and how to develop a deep ecological attitude in university learning for sustainability. Drawing from both concepts of Bowers and Naess, I elaborate on certain notions concerning possible practices in a higher education curriculum for accomplishing sustainable education.

Ecological Crises and Higher Education Curricula

Bowers (1993) asserted that ecological sustainability cannot avoid the influence of culture and ideology. In his view, ecological sustainability cannot be accomplished until knowledge, technological practices, and communal relationships are sustainable. Bowers reflected that American society has become a consumption-addicted society, in which higher education has unavoidably become involved in the consumptive approach. Bowers stated

The university, especially in the United States, has become increasingly oriented toward providing the knowledge for the development of new technologies, as well as educating students to equate consumerism with personal success and happiness. (Bowers, 2011, p. 15)

Universities play an essential role in scientific improvement. However, according to Bowers (2011), new scientific technology that universities support is unable to manage the crises of hyper-consumerism. By contrast, it promotes the expansion of economic consumerism, or a consumer-dependent lifestyle. To solve this problem,

Bowers indicated that university curricula must examine the conceptual roots of the current ecological and cultural crisis. Certain cultural assumptions show environmental limits; however, most university faculty members are unaware of them. University academic professions have also been overly differentiated. In Bowers' view, examining the solutions of ecological crises requires cross-discipline dialogues. Nevertheless, the university curriculum reform is unable to respond to the requirement by changing the traditional curriculum structure.

Bowers posited that instead of seeking for individual success and happiness promoted by industrial culture, a curriculum reform must be guided by university faculty to 'enable current and future generations to live in more ecologically sustainable ways' (Bowers, 2011, p. 30). Bowers described this curriculum reform as follows:

The basis for the claim that curriculum reform must go beyond exposing students to the environmental sciences, and to an examination of environmental issues from the perspective of various disciplines, is that students now need to learn how to become less dependent upon the products and expert services of the market economy that are overshooting the sustaining capacity of natural systems. (Bowers, 2011, p. 31)

University students are excessively dependent on commercial products in their consumptive culture. Their desires are easily stimulated by attractive advertisements guided by the market economy. They buy more than they need, which causes a waste of resources and environmental harm. Bowers stated that, even in environmentally-oriented courses, the curricula ignore the ecological importance of cultural and environmental commonality. The industrial consumer-oriented culture has not been sufficiently examined in university curricula. University teachers engaged in improving a consumer-based economy, rather than making 'the cultural patterns that are deepening the ecological crisis part of their curriculum and pedagogy' (Bowers, 2011, p. 182). Students are taught that nature can be managed under technological and economic control.

Bowers considered the ecological crisis to be linked to a crisis of cultural values and knowledge. Cultivating ecological intelligence is therefore central to university educational reforms (Bowers, 2011, p. 182). This ecological intelligence refers to a wide range of cultural practices; however, it is always ignored in university curricula. Although Bowers' criticism was based on Western culture, following the globalisation trend, economy-based culture is also observable in numerous Asian

countries, in which sustainability in higher education has been narrowly explained as economic and technological development for guaranteeing national prosperity and sustainable existence. This is a global phenomenon that compounds ecological crises.

Deep Ecology Movement

Similar to Bowers' analyses, Naess (1995a) revealed that excessive consumption and waste are primary elements causing ecological crises. Naess and George Sessions formulated the principles of the deep ecology movement as the solution to ecological crises. The inverse of deep ecology is shallow ecology, which concerns economic growth and applied technology in the strategy of maintaining healthy environment. Human interest is dominant in managing ecological problems. Following scientific perspective of the world, the concept of shallow ecology regards all objects in the ecosystem as independent fragments. This notion is generated by anthropocentrism, in which humans are considered the rulers of nature. In contrast to shallow ecology, the concept of deep ecology espouses ecocentrism. Instead of humans as owners of the Earth, they are merely one of the inhabitants, in an equal position as other living or non-living beings. Drawing from gestalt thinking, the deep ecological concept asserts that all things on the Earth constitute a systematic wholeness, which cannot be separated as many individual parts, but that 'everything hangs together' (Naess, 1995b, p. 19). Humans cannot avoid identifying themselves with all living beings.

Naess asserted that, instead of the level of economic development, an ecologically sustainable development is a vital indication of a developed country. Based on his notion of deep ecology, Naess believed that human or nonhuman life has intrinsic value, which is independent of human purposes. All creatures in the ecosystem are equal, referred to as biospherical egalitarianism (Naess, 1995c), and human interference with the nonhuman world should be reduced as much as possible. Concerning human life, rather than a higher standard of living, Naess preferred richness and diversity of life. A higher standard of living is achieved through a high capacity of economic consumption, whereas richness and diversity of life derives from a simple mode of life with less desire. The deep ecology concept teaches that sustainability is related to human development and expands its territory towards sustainable development of nonhuman or non-living forms. Rivers, mountains, and landscape are aspects of human life that belong to the environment that humans rely on. Humans do not live merely in human society, but in natural ecological communities. The human requirement is equal to the requirement of other beings in the ecosystem. The biodiversity notion welcomes an existence with all beings in

nature. Naess claimed that he did not regard deep ecology as philosophy, ideology, or religion, but as a social movement or action for which people strive (Naess, 2008). He envisioned that the deep ecology concept could enlighten people's ecological practices. Initiating acts for deep change of sustainable development first requires the deep ecology attitude as a key element. I further elaborate on Naess' account for developing a deep ecological attitude as follows.

Understanding the Intrinsic Value of Interacting with Nature

Improving sustainable development first requires clarifying nature and human relationship with nature. Nature is generally defined as a physical environment where humans dwell. It provides useful materials or nourishment that humans require for life and propagation. However, because of industrial development, humans demand resources from nature that exceed vital needs. Capitalists manufacture products by exploiting natural resources and exchanging for more capital, and consumption is encouraged under large amounts of industrial production. Excessive extravagance is easily observed. Accompanied by economic development, the human living standard is continually rising. However, human greed has led to severe exploitation of nature. Numerous biological species are on the verge of extinction because of loss of habitat or being caught in excessive numbers. Humans have gradually alienated themselves from nature. Instead of harmony, conflict exists between humans and other beings. Humans are rich in living materials, but poor in mind; they suppose a better life has been created, but what has been created is a distorted attitude to life.

Naess argued that life quality exists in situations of inherent value, rather than adhering to an increasingly higher standard of living (Naess, 1995a). This inherent value is independent of any consciousness of interest by a conscious being. How can this intrinsic value be compatible with nature? In addition to the basic requirement for life, nature possesses remarkable power that supports human spiritual growth. Writers or artists obtain their inspiration from nature. Mountaineers enjoy walking amidst a beautiful landscape in nature. Nature has the power to comfort or inspire people's minds. In addition, nature exercises by means of a regular pattern. Human bodies work well when following this natural pattern and are not independent of the rule of nature. Sustainable development must be considered according to human requirements and nature as a whole where humans dwell. Naess suggested that the ecology movement is 'a movement from being in the world to being in nature' (Naess, 1995b, p. 27). Naess' concern is not limited to the human world, but encompasses all beings in the ecological environment of Earth.

Naess raised the notion of self-realisation for exploring human intrinsic value. This concept is unrelated to accomplishing individual economic achievement or social position. Students are not educated for responding to consumerism with personal success and happiness in the aim of self-realisation. Rather than obtaining material advantage, self-realisation relies on ‘relaxing from striving’ (Naess, 1995b, p. 29) and is not self-centred (Bragg, 1996). For Naess, self-realisation is the inherent human capacity for embracing other beings in the self. This notion is close to what Buddhism calls compassion, which refers to care for all beings without requiring any benefit. Naess stated that ‘the higher the self-realisation attained by anyone, the broader and deeper the identification with others’ (Naess, 1995d).

Instead of the minimal self, the Self in Self-realisation is the great Self. Naess held the interdependent view of looking at self with others. Our identification with others can occur when we recognise all beings are in oneness. The inner self becomes broader and deeper after identifying with others. What Naess referred to as a ‘deep ecological attitude’ (Naess, 1995e) requires this practice of identification. Naess therefore suggested the view of gestalt thinking, according to which ‘the whole is greater than the sum of its parts’ (Naess, 1995f, p. 241). All beings comprise the whole in an ecosystem. The gestalt notion breaks through the modernist subject–object dualism in viewing nature and inspires *spiritual interchange* (Devall, 1995) in encounters with nature. The notion of the self is expanded by identifying with others. This selfless open mind can accommodate everything in nature. When humans engage in harmonious interaction with nature, sustainable development is ensured.

Curricula for Sustainable Development

Regarding curriculum implementation, education for sustainable development is far more than teaching knowledge and principles related to sustainability (UNESCO, 2012b). Based on Bowers’ reflection of the cultural roots of higher education and Naess’ suggestion of a deep ecological attitude, I explore notions of higher education curriculum in this section. I begin with curriculum practices with the aim of sustainable education.

Aim of Sustainable Education

Regarding the aim of sustainable education, I refer to the description in UNESCO’s document.

Education for sustainable development (ESD) is education for the future, for everyone everywhere. ESD enables everyone to acquire the values, competencies, skills and knowledge that are necessary to shape sustainable development. ...ESD creates active and ecologically responsible citizens and consumers who are prepared to address the complex global and local challenges facing the world today. (UNESCO, 2012a, p. 16)

According to this text, ESD guides learners to obtain necessary values, competencies, skills, and knowledge in facing current environmental challenges. Its final goal is to cultivate an ecologically responsible citizen who acts in green ways in their daily life for ecological sustainability. Hence, it is essential for learners to search for their intrinsic values in nature, an exploration that can motivate their green attitude and support their harmonious interaction with nature. Bowers indicated that higher education has been governed by market logic that conducts students to develop a minimal self (or ego-self) and to be a winner in free market competition. The notion of a minimal self is merely a narrow sense of personal growth (Devall, 1995) that emphasises individual survival; however, it causes humans spiritual loss. Students must seek intrinsic value rather than material value. According to Naess' suggestion, self-realisation is a self-realisation of all beings. Similarly, an ecologically responsible citizen is the citizen of an ecological community who assumes responsibility for the life of all beings. This thinking could guide university curricula in an alternative approach. The following section provides some suggestions for university curricula in practicing sustainable education.

Exploring Sustainable Forms of Cultural Practice

Bowers examined the industrial consumer-oriented culture in higher education (1993, 2011) and provided examples for university learners to explore various sustainable forms of cultural practice for developing ecological intelligence. First, he suggested that students listen to folk knowledge in their community for clarifying and improving upon this knowledge in curricula. Second, university curricula must 'promote an in-depth study of cultures that have developed a form of intelligence and metaphorical language that takes account of the sustainable characteristics of natural systems in their bioregion' (Bowers, 2011, p. 185). Aborigines possess more ecological wisdom than city residents do, and have an ecological intelligence of natural preservation. This consciousness of environmental protection is obtained from their traditions, as seen in their cultural rituals, poetry, or dances for deities. Ecological wisdom also

exists in their indigenous language. Third, ecological wisdom can be learnt from earlier generations. Although we strive to obtain ecological knowledge from science or new technology, many ecological insights already exist in traditional culture, which are ignored or taken for granted. Certain conventional moral values consider environmental preservation, an intelligence that can be studied in university.

Developing an Ecologically Sustainable Lifestyle

Maintaining a sustainable lifestyle is essential to sustainable education, but it is the most difficult aspect of education. A green lifestyle derives from an in-depth knowledge of ecology and nature. Nevertheless, university learners are governed by a consumer-driven lifestyle in the current industrialised society. A critical examination of students' previous experience is essential. This strategy assists them in detecting the ideology by which they have been controlled. Their thinking regarding the environment must move from anthropocentrism to ecocentrism, from individual survival to harmonious symbioses, similar to Naess' claim that 'everything hangs together'. Sustainable development must be accomplished using gestalt thinking (Naess, 2010). Enclosing ourselves will not achieve sustainability; an interactive being is the only being with ecological intelligence. Nature is an intelligent teacher for humans; however, it relies on whether humans perceive its profound doctrine. Wisdom derived from nature leads to a simple and natural lifestyle.

Interdisciplinary Curriculum Structure

In universities, the solution for ecological crises can be most effectively addressed using a cross-discipline approach. Bowers suggested that cross-discipline dialogues are essential. UNESCO assumes the same view, that interdisciplinary expertise is the optimal approach for supporting sustainable development in education. However, the current curriculum structure in higher education is over-differentiated and cannot meet this requirement. Ecological crises cannot be solved using only one discipline. Students' understanding of ecology should derive from various learning resources, which promotes diverse viewpoints. In the university curriculum, general education may be an appropriate learning field for integrating various disciplines for learning sustainability. Sustainable education typically tends towards the sciences (such as ecological engineering, environmental resources, and ecological preservation) or social sciences (such as green economies, green societies, ecological education, or ecotourism). Most of these disciplines are valuable for ecological practice. However, humanities are a seemingly *null curriculum* in ecological learning. The disciplines of

literature, history, philosophy, or the arts promote scant discussion on sustainable education. This is unfortunate because humanities provide critical pathways for viewing the intrinsic values of nature in culture. Humanities also help students experience rich intelligence in nature. The ecological crisis is built upon fallacious ecological knowledge. By contrast, learning in spiritual and cultural aspects can elicit positive attitudes towards supporting university learners to adopt sustainable lifestyle.

Concluding Remarks

This study suggests how to manage the current ecological crises, and considers the educational purpose of supporting university learners to live a rich and diverse life. Naess noted that ‘there is ecological sustainability if, and only if, the richness and diversity of life-forms are sustained’ (Naess, 2008, p. 297). We live *in* nature and are part *of* nature; therefore, we should do something *for* nature. Instead of a large-scale environmental revolution, consistent practice in daily life is more influential for ecological change. For the purpose of sustainability, the intrinsic value concealed in nature, as shown in local or aboriginal cultural practices, should be compatible with economic value. For educating ecologically responsible citizens, sustainable education must facilitate university learners to renew their perspective of being a human in nature.

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***Development of Knowledge Management Skill and Nursing Innovation
Development Competency among Thai Nursing Students***

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Abstract

The demand on quality health care service leads nursing arena has been expected professionalism from society. Supporting nursing students to learn from knowledge management process, and promoting the development of nursing innovation are processes for encouragement them to be able to integrate their theoretical knowledge to practice. This action research was designed to develop knowledge management skill and nursing innovation development competency among 40 second year nursing students in Prachomklao College of Nursing, Thailand. The study consisted of 2 phases: 1) developing the learning and teaching method, and 2) experimenting and evaluating the effectiveness of the developed method; it lasted for 6 weeks.

The findings were as followed: 1) The nursing students' mean score of knowledge management skill that evaluated by themselves was at a "good" level (mean=4.18) which associated to mean score of knowledge management skill evaluated by nursing lecturer (mean=3.89). 2) The nursing students' self-evaluation mean score of nursing innovation competency was at a "good" level (mean=3.98). 3) The mean score of innovation in each group that evaluated by nursing lecturers was at a "moderate" level (mean=2.36). 4) A slow internet connection was the major barrier that affected a delay for searching and less knowledge sharing. Such finding could be a guideline for teaching and learning development that integrate the knowledge management process and self-development for enhancing knowledge management skill and nursing innovation development competency among nursing students. This leads to improve service quality and develop their skills to be modernized and congruent to knowledge-based society.

Keywords: knowledge management skill, innovation, competency, nursing students

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Introduction

The idea of lifelong learning has cumulatively gathered momentum and consequently it has become an essential component of the nursing world (Robyn & Elaine, 2009). The demand on quality health care service from client leads nursing arena has been expected professionalism from society. Nursing knowledge and skills are required for providing care appropriately to clients and society (Hanuchareankul, 2001; Miller, 1988). Boyer (1996) asserted that to be a registered nurse and scholars, it is needed to research, integration of knowledge and teaching that able to apply for real situation. Healthcare reform and advanced technology is also another booster for nursing profession to develop quality of providing care. Therefore, nurses must keep continuing practice and shape their skills to ensure that consumers can rely on them.

Knowledge management (KM) is the process of capturing, developing, sharing, and effectively using organizational knowledge. (Davenport, 1994) KM is the processes that accumulate information from multiple source such as personal's knowledge and documentary, then, systematical management all information to be reachable for any personnel. The goal of KM is to develop personnel to work effectively (Office of the Public Sector Development Commission (OPDC) & Thailand Productivity Institute, 2005; Senge, 1990). Using of KM in nursing practice is able nurses to improve quality of care and develop their skills to be modernized and congruent to knowledge-based economy. Therefore, nursing educational institute can use KM as part of process to achieve in producing nursing students to meet the requirement of Thai Qualifications Framework for Higher Education (TQF) (Ministry of Education, 2009). Nursing students should thus be promoted to devote in profession, and to have the awareness in self-development.

Self-directed learning, supporting nursing students to learn from KM, and promoting the development of nursing innovation are processes for develop the students to be able to integrate their theoretical knowledge to practice. The researchers, a team of teacher who taught "Nursing care of persons with health problems practicum I", realized the important of integration between self-directed learning and KM. Thus, teaching method that combined between self-directed learning and cooperative learning was developed in order to encourage nursing students to have continuously self-development.

By applying the results from Rungnoi's study (Rungnoi et al., 2010), this study used concept of self-development and professional life planning on graduate preparation for fourth year nursing students. The study presented that students increased their self-development ability and professional life planning. The study also recommended that using of life planning and self-development at the early stage of study; since first year would be able to develop continuously self-development which congruent to nursing competency of nursing council as promoting of seeking knowledge and chance for self-development (Thai Nursing and Midwifery Council, 2009). In this study, the researchers applied the quasi-experimental study for KM skills and ability to create nursing innovation on second-year nursing students. The benefit from this study would help students to obtain knowledge and skills for increasing confident and able to provide proper care to adult and older people who have sickness. Students would have experiences base on the objective of curriculum and TQF.

Conceptual framework

The Self-directed learning and self-development concept were used as a framework of this study. These two concepts were applied from Rungnoi's study (2010) and knowledge management (Office of The Public Sector Development Commission (OPDC) and Thailand Productivity Institute, 2005). The concepts were about tacit knowledge and explicit knowledge by dealing with specific process, searching, storing, exchanging knowledge, and evaluation of knowledge for students, social benefit and developing of nursing innovation. These concepts also took part in emerging of new nursing outcome and research.

Research Methodology

Design: This action research aimed to develop knowledge management skill and nursing innovation competency among Thai nursing students during studying in "Nursing Care of Persons with Health Problems Practicum I". This study was conducted between February and September 2012 using one-group posttest design.

Ethical Considerations: Approval to conduct the study was granted by the Ethics Review Committee for Research Involving Human Research Subjects, Prachomklao College of Nursing, Phetchaburi. All potential subjects were informed about: the nature and purpose of the study; what participation in the study involved; confidentiality and anonymity issues; and, the right to withdraw, at any time, without repercussions. All subjects consenting to participate were required to sign a consent form.

Sample and setting: The sample consisted of 40 second-year nursing students from one college of nursing under administration of the Ministry of Public Health. The criteria for inclusion involved: being a second-year nursing student in Bachelor program; having a GPA of at least 2.00; and, volunteering to participate. Those excluded: did not desire to participate; had a GPA below 2.00; or, had repeated classes in the first-year of college. The selected subjects tended to: be female (n=37; 92.5%); be male (n=3; 7.5%); be 18 to 20 years of age (average = 19.15 years); and, have a GPA of 2.97.

Research instruments: Based upon review of the literature. Five developed instruments were used to gather data. The instruments included a: (a) Demographic Data Questionnaire; (b) Nursing Students' Self-Development Planning and Knowledge Management Record (NSSDPKMR); (c) Nursing Students' Self-Assessment Knowledge Management Skill and Nursing Innovation Development Competency Questionnaire (NSSAKMSNIDCQ); (d) Assessment of Nursing Students' Knowledge Management Skill (ANSKMS); and, (e) Assessment of Nursing Students' Nursing Innovation Development (ANSNID).

The Demographic Data Questionnaire (DDQ) was administered to the subjects to provide demographic data regarding their: age; gender; college of nursing GPA.

The Nursing Students' Self-Development Planning and Knowledge Management Record (NSSDPKMR) was a 15-item record/diary in which the subjects recorded their self-assessment, self-development planning, self-evaluation, and learning

outcome from KM activities, regarding whether one met six week goals and what was learned from participation in learning program.

The Nursing Students' Self-Assessment Knowledge Management Skill and Nursing Innovation Development Competency Questionnaire (NSSAKMSNIDCQ) was a 20-item instrument. The instrument was developed for the purpose of assessing the nursing students' perceptions about their self-assessment knowledge management skill and nursing innovation development competency. The instrument consisted of two subscales: knowledge management skill (10 items), and nursing innovation development competency (10 items). The selected subjects were asked to respond to each item on a 5-point Likert-like scale (1= very poor to 5 = very good). Total subscale scores and the scores of their components, which could range from 1 to 5, were obtained by calculating the mean scores for all items. Mean scores were interpreted as: very good level (4.51-5.00); good level (3.51-4.50); moderate level (2.51-3.50); poor level (1.51-2.50); and very poor level (1.00 - 1.50). It took 3 - 5 minutes to complete the questionnaire.

The Assessment of Nursing Students' Knowledge Management Skill (ANSKMS) was a 10-item instrument. It was used for post evaluation students' skills. The lecturer evaluated the students' skill in each item on a 5-point Likert-like scale (1= very poor to 5 = very good) at the end of the 6 week program. Total scores of their components, which could range from 1 to 5, were obtained by calculating the mean scores. Mean scores were interpreted as: very good level (4.51-5.00); good level (3.51-4.50); moderate level (2.51-3.50); poor level (1.51-2.50); and very poor level (1.00 - 1.50). It took 3 - 5 minutes to evaluate each ANSKMS.

The Assessment of Nursing Students' Nursing Innovation Development (ANSNID) was used for group evaluation. It consisted of 14 items of three-level rubric score. The lecturer evaluated each group about their nursing innovation development, implementation, and presentation of their outcomes. Total scores of their items, which could range from 1 to 3, were obtained by calculating the mean scores. Mean scores were interpreted as: good level (2.51-3.00); moderate level (1.51-2.50); and poor level (1.00-1.50).

All instruments, with the exception of the DDQ, were assessed by three experts in nursing education for content validity. The experts determined the index of item congruence to be: (a) 0.90 for the NSSDPKMR; (b) 0.92 for the NSSAKMSNIDCQ; (c) 0.93 for the ANSKMS; and, (d) 0.90 for the ANSNID. Reliabilities of the NSSAKMSNIDCQ were determined to be: 0.89 (pilot test) and 0.90(actual study). Reliabilities for the ANSKMS were determined to be: 0.81 (pilot test) and 0.83 (actual study). Since the NSSDPKMR was a diary/record, and the ANSNID was an assessment form used for the group evaluation, their reliabilities were not determined.

Procedure: The overall purpose of the experimental study was to increase the nursing students' knowledge management skill and nursing innovation development competency. The experimental program was implemented in Nursing Care of Persons with Health Problems Practicum I for six weeks. Prior to the start of the program, subjects were placed into five groups of eight students each. Research methodology composed of two steps as follows:

Step 1: Development of integrated instructional method for strengthening of knowledge management skills of nursing students by applying knowledge management and nursing innovation development notion combining with self-directed learning and self-development idea from the study of Rungnoi (2010).

Step 2: Experimental study and evaluation for the effectiveness of the above teaching method. For trial used of the teaching method, all lecturers who involved were prepared for teaching method and the assessment processes. The selected subjects were divided into a small group; each group composed of eight students. They were assigned to join in planning for development of nursing innovation. The effectiveness of this teaching program was evaluated from individual knowledge management skill and competency in development of nursing innovation. The selected subjects were also arranged as follows:

1) **Knowledge identification**: students had to be able to perform assessment and self-evaluate of their knowledge on pathology and caring for children, adult and aging. They have to be able to summarize and share knowledge through paper and within group.

2) **Knowledge acquiring** via textbook, documents, research and databases for pathology and caring a specific disease in some patients.

3) **Knowledge Organizing**: make a conclusion of obtained knowledge by using mapping technique.

4) **Knowledge Codification**: classifying, screening, summarizing, and presenting the obtained knowledge to mentors of each ward.

5) **Knowledge accessibility** by using an individual portfolio of self-development and knowledge management, then the students have to present through the documents, websites such as gotoknow.org or www.pckpb.ac.th.

6) **Knowledge sharing**: presenting of idea mapping as individual requirement and group work.

7) **Learning**: summarizing of self-development, knowledge management practice and learning outcome.

Data analysis: Descriptive statistics were used to assess the demographic data and scoring of the study's instruments.

Results

Knowledge management skills and nursing innovation development competency of nursing students

Table 1: Mean scores and standard deviations of knowledge management skills evaluated by nursing students and lecturers after using integrated instructional program (n= 40)

Lists of evaluation	Students		Lecturers	
	\bar{x}	SD	\bar{x}	SD
1. Able to analyze self-strength and weakness and specify which aspect should be developed.	4.48	0.48	4.10	0.30
2. Able to perform self-analyze on weakness toward knowledge of learning subject.	4.25	0.51	4.05	0.32

Lists of evaluation	Students		Lecturers	
	\bar{x}	SD	\bar{x}	SD
3. Able to clearly state about obtained knowledge	4.18	0.50	3.98	0.16
4. Able to clearly plan for self-development and matching with the result of self-evaluation.	4.35	0.48	3.70	0.46
5. Able to inquire in indicated points of learning subject	4.20	0.46	3.58	0.50
6. Able to perform an academic search from variety and update sources	3.98	0.28	3.68	0.47
7. Able to apply knowledge from theory and clearly create concept mapping about pathology and caring	3.85	0.36	3.85	0.36
8. Able to search and accesses to variety sources of Internet such as Go to know.org, Web Board, Web Blog	3.90	0.30	3.90	0.30
9. Able to summarize completely and correctly the knowledge sharing within small group of each ward.	4.30	0.54	4.03	0.16
10. Able to clearly summarize the obtained benefits and self-development scheme base on knowledge management before end of the practicum.	4.35	0.46	4.00	0.00
Total	4.18	0.44	3.89	0.15

As shown in Table 1, the study's findings revealed all of the post-program mean scores of the students' knowledge management skills by self-evaluation were at a level determined as "good." ($\bar{x} = 4.18$). The highest mean score was displayed in "able to analyze self-strength and weakness and capable to identify particular development issue ($\bar{x} = 4.48$), followed by, able to clearly summarize the obtained benefits and self-development scheme base on knowledge management before end of the practicum. ($\bar{x} = 4.35$). The lowest average presented in "able to apply theory in creating concept mapping of pathology and caring for patients ($\bar{x} = 3.85$) and search and accesses to variety sources of Internet such as Go to know.org, Web Board, Web Blog ($\bar{x} = 3.90$).

The total mean scores of knowledge management that assessed by lecturers were at a "good." level ($\bar{x} = 3.89$). The highest mean score was: able to analyze self-strength and weakness and specify which aspect should be developed. ($\bar{x} = 4.10$). Followed by able to perform self-analyze on weakness toward knowledge of learning subject ($\bar{x} = 4.05$). The lowest average level was able to inquire in indicated points of learning subject ($\bar{x} = 3.58$)

Table 2: The nursing students' mean scores of self-evaluation on nursing innovation development competency after using integrated instructional program (n=40)

Lists of evaluation		D
1. Able to analyze and solve the problems in development of nursing innovation.	4.33	0.47
2. Able to participate in planning for development of nursing innovation.	4.08	0.48
3. Able to apply knowledge management method from class to develop nursing innovation	3.97	0.16
4. The innovation was backed up by supporting theory and updated references.	3.68	0.47
5. The developed innovation supported by rationales and based on the evidence.	3.90	0.30
6. Traditional wisdom was integrated with your developed innovation	3.98	0.16
7. The developed innovation was systematically trialed and improved	3.73	0.45
8. The developed nursing innovation was represented worthiness and valuableness	3.96	0.36
9. The developed innovation represented creativity.	3.98	0.16
10. The developed innovation showed usefulness to clients.	4.23	0.27
Total	3.98	0.33

As shown in Table 2, the mean scores of students' self-evaluation on nursing innovation development competency was presented at a "good" level ($\bar{x} = 3.98$). The highest mean score was presented in able to analyze and solve the problems in development of nursing innovation. ($\bar{x} = 4.33$) Followed by, the developed innovation showed usefulness to clients ($\bar{x} = 4.23$). The lowest mean score was the innovation was backed up by supporting theory and updated references. ($\bar{x} = 3.68$).

Table 3: The mean scores of developed nursing innovation among groups of nursing students after using integrated instructional method (n=5)

Lists of evaluation		D
1. Name the innovation interestingly and corresponding with the purpose of study.	2.20	0.45
2. Clearly present the rationales of innovation.	2.20	0.45
3. The purpose of study was clearly presented and covered all related aspects.	3.00	0.00
4. Provide supporting theory and used present reference.	2.40	0.55
5. Clearly indicate steps in development of nursing innovation.	2.40	0.55
6. The developed innovation shows worthiness and economy.	2.00	0.00
7. The developed innovation presents creativity.	2.40	0.55
8. Apply and integrate proper technology and traditional wisdom to innovation.	2.60	0.55

Lists of evaluation		D
9. The developed innovation is trialed and improved scientifically.	2.00	0.00
10. The developed innovation is benefit to clients.	2.40	0.55
11. Using appropriate language.	2.00	0.00
12. Respond to question and suggestion accurately.	2.00	0.00
13. Using properly media for presentation.	2.40	0.55
14. Using appropriately time for presentation.	3.00	0.00
Total	2.36	0.30

As shown in Table 3, the mean scores of developed nursing innovation evaluated by lecturer was presented at a “moderate” level ($\bar{x} = 2.36$). The highest mean score at a “good” level was displayed in 1) the purpose of study was clearly presented and covered all related aspects ($\bar{x} = 3.00$), and 2) use appropriately time for presentation. The lowest mean scores at a “moderate” level were 1) the developed innovation shows worthiness and economy, 2) the developed innovation is trialed and improved scientifically, and 3) respond to question and suggestion accurately ($\bar{x} = 2.00$).

The findings from qualitative data presented that majority of students (24 students) insisted that the teaching by using knowledge management skills and development of nursing innovation competency enhanced their self-evaluation and life planning. They increased their eagerness to learn after entering in this program. Ten of subjects asserted that using of knowledge management together with development of nursing innovation allowed them to shape their analyzing problem skills and improved their creative idea on pertinently development of nursing innovation for patients. Moreover, five of them explained that the linking of existing knowledge from class and perform a concept mapping of pathology made them understand more in caring for patients. However, the existed barrier of this study was about speed of internet. It affected on searching of information and online sharing knowledge. Some subjects indicated that there was no variety source of information. The slowly speed of internet delayed sharing knowledge process which time consuming.

Discussion

The integration of developed program into academic curriculum may be a mean to ensure that nursing students were trained to be active, yearn to know, lifelong learning and take responsibility of their individual study and group innovation creativity. All these skills could eventually increase their self-confidence to work as a nurse. Moreover, Thailand will face with the ASEAN Economic Community in 2015. Service careers such as nursing and medical practitioner are expected to see particular movement, resulting in high competition in the local workforce because that will be allowed to work across the ASEAN region in the next year. Change and uncertainty are now the only constants in contemporary health care, thus health-care professionals, including nurses, need to become lifelong learners if they are to remain competent in their fields. A supportive learning culture in the college is vital to the development of the lifelong learner. Nursing colleges have explicitly incorporated lifelong learning into their educational philosophies either via their mission statements, goals, strategies, and learning outcomes. This is evidenced through the emphasis placed on student-centered learning – including the promotion of critical

and analytical thinking skills as a part of the learning process. These integrated instructional methods assist in developing the attributes of lifelong learning in the students.

After the experimental study by using integrated instructional method in “Nursing Care of Persons with Health Problems Practicum I” for six weeks, the average levels of self-evaluation score and lecturer evaluation score toward knowledge management skills were showed at a “good” level. Also the development of nursing innovation competency was at a “moderate” level. These findings get in the same way as Gustafson’s study (2003) that students enabled to communicate effectively with patients, increased of team cooperation and sharing. Students were able to perform holistic care to their clients as well.

The mean scores on knowledge management skill of nursing students were at a “good” level. The students were able to evaluate their strength, weakness, and specified issues that they need to improve themselves. Moreover students also abled to summarize gained benefit and self-development plan after the end of practicum. According to Hirschbuh & Bishop (2002) studied about knowledge management in distance learning. Their study revealed that KM can improve distance learning outcome. Additionally, the qualitative data discovered that knowledge management processes helped students to improve their self-evaluation skill and planning for self-development. It was also useful in learning by increasing the eagerness in searching information.

However, the barrier for this program was about the speed of internet. The internet affected on searching and sharing knowledge through online. The subject groups reported that they could not perform searching via variety of online sources because the providing internet had a very low speed even they had a limit of time for searching. Sridharan & Kinshuk (2002) asserted that information technology was an influent factor for achievement in knowledge management. The study of Milam (2001) also confirmed that e-learning was an important part for knowledge management because it was frequently used by learners. In this study, the results showed that the average score that evaluated by lecturers on nursing innovation of the students was in moderate level. It demonstrated that they had moderate skills because they studied in second year and just started in caring a patient. Thus, they might not perform well in analytical thinking. When consider in detail, using appropriately time for presentation and clearly stating purpose of study was presented at a “good” level. This reflected that students abled to link the existing problems and objective of the study. The using of knowledge management could be applied for nursing innovation development. The analytical problem skill and creative thinking could be obtained from development of nursing innovation which existed in the real working environment.

Conclusions and Recommendations

This study used integrated instructional program to promote knowledge management skills and nursing innovation development competency for Thai nursing students. It can serve a guide for faculty to enhance self-development, nursing innovation creativity and problem solving in nursing students. The institute should encourage and support the faculties to use continuously the developed program. The facilitating

factors for researching such as documents, journals, and high speed internet connecting point should be provided for students and lecturers. Finally, lecturers need to give systematic suggestion for students in order to create lifelong learning and develop nursing innovation. For further study, it was recommended that next study should use this teaching method with variety groups of participant and apply in other subjects and different settings such as community.

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An Expert Module of an Intelligent Tutoring System

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Abstract

Intelligent Tutoring Systems (ITSs) are complex computer programs that manage various heterogeneous types of knowledge ranging from domain to pedagogical knowledge. ITS aims to overcome some educational problems concerning individual differences, capabilities and skills. So, the recognized leadership in the learning process is centered on the student himself. This research is adopting on the Natural Language processing and intelligent agents in this Intelligent Tutoring Systems.

The resources needed to build an ITS come from multiple research fields, including artificial intelligence, the cognitive sciences, education, human-computer interaction and software engineering. With the aid of Natural Language Processing, we can deal with the student in analyzing his answers and solving the questions, especially that this research concentrates on the basics of the grammar of the Arabic language as a domain knowledge.

The global structure of ITS consists of mainly four modules: a tutor module, a question selector, an expert module and a student module in addition to a user interface module. This research concentrates on the Expert Module (EM) that aims to get the correct answer of a specific question from the domain. EM receives a question that is selected randomly by the question selector from a question bank. Such a question is represented to the student using Arabic language. EM analyzes that question by consulting a dictionary which contains a lot of Arabic words with related features. EM generates the appropriate answer by matching the relating features of that question words.

Keywords Terms—Expert Module, Analysis of a question, solving a question

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1. Introduction

An intelligent tutoring system (ITS) is any computer system that provides direct customized instruction or feedback to students, i.e. without the intervention of human beings. ITS typically consist of four modules: the Tutoring Module, which designs and regulates instructional interactions with the students; the Question Selector Module, which selects a question from a question bank; the Expert Module, which comprises of facts and rules of the particular domain to be conveyed to the student; the Student Module, which is a dynamic representation of the students current state of knowledge; in addition to the User Interface, which controls interaction between the student and the system [Vyshnavi Malathi Ramesh & N. J. Rao (2010)]. Fig.(1) illustrates the structure of an ITS.

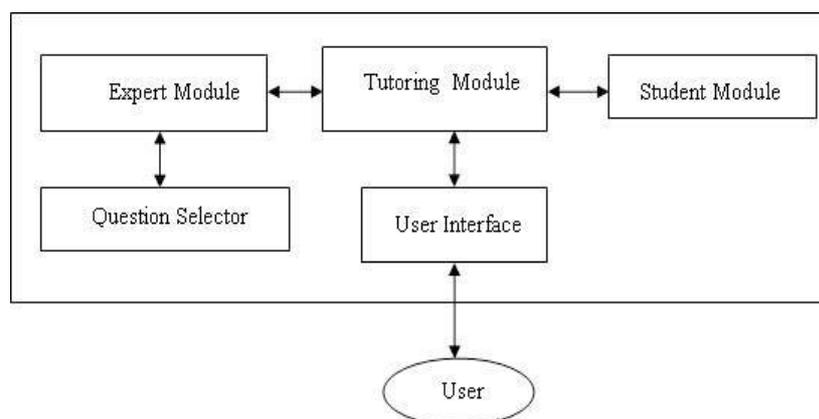


Fig. (1) The global structure of ITS

This research concentrates on the Expert Module. To understand this module we have to talk briefly about the domain knowledge, knowledge base and the Question Selector which its output is the input to EM.

2. Domain Knowledge

Domain knowledge in artificial intelligence is the knowledge about the environment in which the target system operates. Also a domain model is created in order to represent the vocabulary and key concepts of the problem domain. The domain model also identifies the relationships among all the entities within the scope of the problem domain, and commonly identifies their attributes. An important advantage of a domain model is that it describes and constrains the scope of the problem domain. The domain model can be effectively used to verify and validate the understanding of the problem domain among various stakeholders [Peter Brusilovsky & David W. Cooper (2010)]. The adopted domain is the curriculum of the grammar of Arabic language of the elementary stage in Egypt.

2.1. Representing the Domain knowledge in AG_TUTOR

To design a structure for the domain, we use the technology of adaptive hypermedia system. The information structure of a typical adaptive hypermedia system can be considered as two interconnected networks or “spaces” as shown in Fig. (2)

- A network of concepts (knowledge space)
- A network of hypertext pages with educational material [Peter Brusilovsky (2002)].

In AG_TUTOR, we had transferred all the domain knowledge into concepts and fragments. So, we can easily design our networks of concepts (knowledge space) and hyperspaces (hypertext pages) as the sample of the network that is shown in Fig. (2). The sample of the Arabic Grammar of Fig.(2) was designed as concepts and fragments like that:

Concept name: speech الكلام

Its fragments: noun الإسم, verb الفعل, particle الحرف

Concept name: the nominal sentence الجملة الإسمية

Its fragments: مبتدأ, خبر

Concept name: verbal sentence الجملة الفعلية

Its fragments: فاعل, فعل, verb, subject

And a network of concepts (knowledge space) comes through:

- مبتدأ, خبر and فاعل are connected to the names
- The verb of the verbal sentence is connected to فعل

But the network of hypertext pages comes through:

- The speech, the names and the nominal sentence pages are connected together.
- The verbal sentence and the verb pages are connected together.

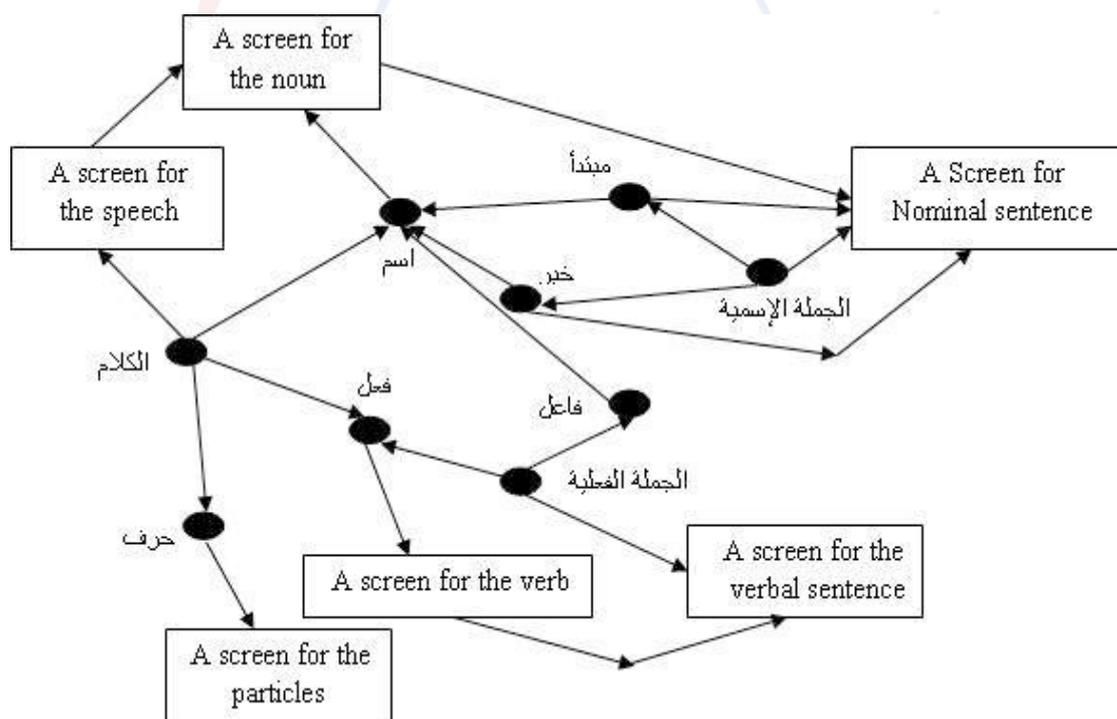


Fig. (2): A sample of network of a part of Arabic Grammar

And so on all the grammar that will be taught will be transferred to this form and then to database tables on the computer. Through this analysis, we can obtain a big network like the one in Fig. (2). This network includes a network for all the concepts and the relations between them and another network for the hyperspaces (pages) for

each concept and the relations between them, then how each network related with the other one.

3. Knowledge Base

Knowledge base (KB) is a technology used to store complex structured and unstructured information used by a computer system. The initial use of the term was in connection with expert systems which were the first knowledge-based systems [Roger Nkambou¹&Jacqueline Bourdeau²&Valéry Psyché² (2010)].

3.1. Knowledge acquisition

Knowledge acquisition is the process of extracting, structuring and organizing knowledge from one source or more, mostly from human experts, so it can be used in software such as an Expert System (E.S.) or any other applications in Artificial Intelligence (AI). This is often the major obstacle in building any application of Artificial Intelligence [Ioannis Hatzilygeroudis& Jim Prentzas (2009)]. The source of the domain knowledge in this research is the transcripts that the Arabic Expert made them from the curriculum of the Arabic grammar of the fourth grade of primary school.

3.2. Knowledge type

In order to progress through the levels of integrations in the curriculum, teachers must become proficient in articulating learning objectives based on conceptual knowledge, as well as being explicit in their teaching of the procedural knowledge. In this research, the domain knowledge (as said before) is the curriculum of Arabic Grammar of the fourth grade of elementary schools. This domain is considered Conceptual knowledge. The domain consists of many concepts and relations between each one and others. Each concept represents a lesson

3.3. Knowledge representation

Knowledge representation is a term that is used in the artificial intelligence (AI) fields dedicated to representing information about the world in a form that a computer system can utilize to solve complex tasks such as diagnosing a medical condition or having a dialog in a natural language. Knowledge representation incorporates findings from psychology about how humans solve problems and represent knowledge in order to design formalisms that will make complex systems easier to design and build. Knowledge representation and reasoning also incorporates findings from logic to automate various kinds of *reasoning*, such as the application of rules or the relations of sets and subsets [Judith Masthoff Bamshad Mobasher& Michel C. Desmarais Roger Nkambou (2012)] .

EM knowledge is represented using production rules method. The production rule method consists of: facts and rules. Fig.(3) shows the production rule system of EM.

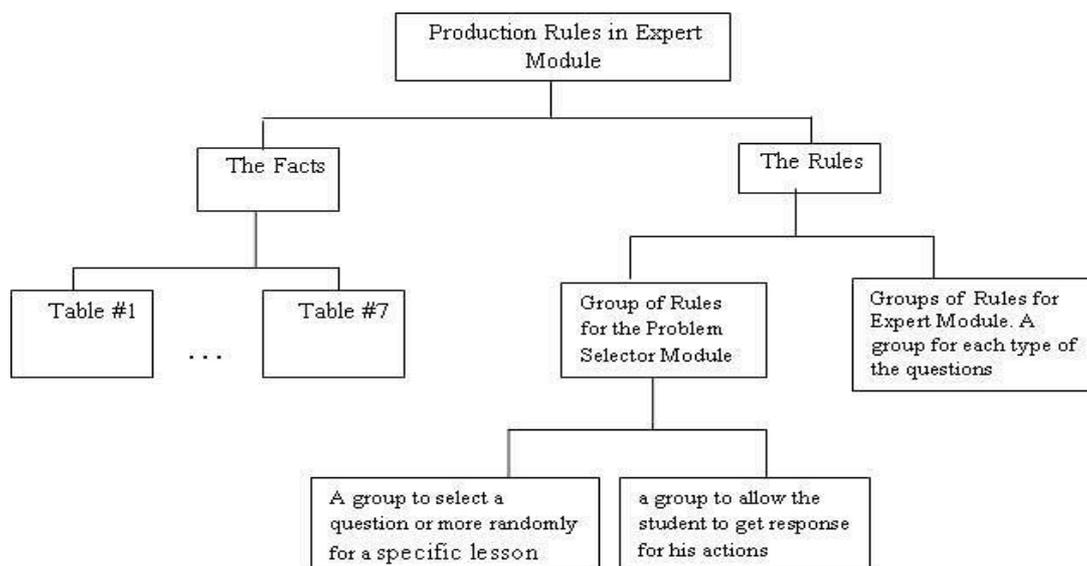


Fig. (3) the production rule system of EM

Rule-based cognitive models serve many roles in intelligent tutoring systems (ITS) development. They help to understand student thinking and problem solving, help to guide many aspects of the design of a tutor, and can function as the “smarts” of a system. Cognitive Tutors using rule-based cognitive models have been proven to be successful in improving student learning in a range of learning domain. [Vincent Aleven (2010)].

3.3.1. The facts:The facts are represented through a big database. This database was implemented using Microsoft Access including eleven tables for all ITS. But in EM and Question Selector, 7 tables of this database are used. These tables represent the question bank and the dictionary of this module. Samples of these tables are shown below:

1. Problem table: contains question heads and three codes; concept number, concept type, and question head number such as: اسحب اسم الإشارة المناسب وضعه في مكانه المناسب فيما يأتي: (press on the correct answer between brackets)

problems			
c_code	type_code	P_no	question_head
4	1	1	أعرب الجملة التالية:
1	1	1	اسحب اسم الإشارة المناسب وضعه في مكانه المناسب فيما يأتي:

Table (1) problems table

2. Questions table: contains the sentences needed to be solved beneath each question head and four codes; concept number, concept type, and question head number, and number of the sentence such as: تلميذ (هذا هذان هؤلاء)
(----- is a pupil (this – these))

questions				
c_code	type_code	P_no	q_no	question
4	1	1	1	العصفور جميل
4	1	1	2	العلم نور
1	1	1	1 تلميذ (هذا هذان هؤلاء)
1	1	1	2 طفلة صغيرة (هذه هذان هؤلاء)

Table (2) question table

The tables (1,2) and the relations between them and some other tables are the data base of the question selector and EM.

3. Word table: contains all the words that are included in all exercises that will be presented to the student and its feature codes.

Words					
w_code	word	type	gender	count	anatomy
148	العصفور	1	1	1	2
149	جميل	1	1	1	5
150	العلم	1	1	1	4
151	نور	1	1	1	4
152	تلميذ	1	1	1	1
153	طفلة	1	2	1	1
154	صغيرة	1	2	1	5

Table (3) words table

4 . Classify table: contains word type such as: (noun) حرف , (opposition) فعل , (verb) اسم and a code for each.

5. Gender table: contains the gender of the word and a code for each such as: مؤنث , مذکر (male, female)

6. Count table: contains the count of the word and code for each such as: مفرد , مثنى , جمع (singular, double, plural)

7. Anatomy table: contains the kind of the word and a code for each such as: إنسان , حيوان , نبات , جماد , صفة (human, animal, plant, adjective)

Classify	
Type	Type_Code
اسم	1
فعل	2
حرف	3

Table (4) Classification Table

Gender	
Gender	Gender_Code
مذكر	1
مؤنث	2

Table (5) Gender Table

Count	
Count	Count_Code
مفرد	1
مثنى	2
جمع	3

Table (6) Count Table

Anatomy	
Anatomy	Code
انسان	1
حيوان	2
نبات	3
جماد	4
صفة	5

Table (7) Anatomy Table

The tables (3-7) and their relationships are the database of the Expert system module (we'll talk about it latter).

3.3.2. The Production Rules

A production system (or production rule system) is a computer program which consists primarily of a set of rules about behavior. These rules, termed **productions**, are a basic representation found useful in automated planning, expert systems and action selection [Budi Hartanto, Jim Reyeb (2013)].

Productions consist of two parts: a sensory precondition (or "IF" statement) and an action (or "THEN"). If a production's precondition matches the current state of the world, then the production is said to be *triggered*. If a production's action is executed, it is said to have *fired*. A production system also contains a database, sometimes called working memory, which maintains data about current state or knowledge, and a rule interpreter [Budi Hartanto, Jim Reyeb (2013)].

In this research the rules are represented through a big group of rules appeared in the implementation (the code) of the module. Fig. (3) shows the production rules of EM. A group for each type of the questions. Here is a sample from EM rules:

Rule #1: to solve a question like the one mentioned before:

اسحب اسم الإشارة المناسب وضعه في مكانه المناسب فيما يأتي: تلميذ (هذا - هذان هؤلاء)

(press on the correct answer between brackets: (this – these) ----- is a pupil)

```
if((second_word[2].equals(first_word[2]))&&(second_word[3].equals(first_word[3]
))) then {answer[0]= choices[i];break;}
```

4. Question Selector Module

The main goal of question selector module is to select a random question from a question bank (table #1 & #2) and represent it to the student according to the lesson that he selects and give him the chance to answer. The input of the question selector module is the data base bank. This bank of questions is represented mainly through the table #1, table #2 and their relationships with other tables in the database. The question bank consists of a huge number of questions. The bank is divided to many groups of questions as a group for each lesson. In this research, there are many types of questions, these types are:

1. Multiple Choices questions (MCQ)
2. Match to the correct sentence
3. Press on something (like: signal names,)
4. Fill in the space with the correct answer from the brackets
5. Get out a verb, a noun, or a particle or
6. Parse a sentence
7. Arrange a nominal sentence to be a verb sentence and vice versa (reordering).
8. Give the Plural, double or of a noun

5. The Expert Module

Cognitive modeling is the activity of producing a detailed description of the knowledge involved in student performance in a given domain, including strategies, problem-solving principles, and knowledge of how to apply problem solving principles in the context of specific problems [Vyshnavi Malathi Ramesh & N. J. Rao (2010)]. In this research EM is used the production rules method for representation of the knowledge base (rules and facts) that used for solving the question that is represented to the student. EM uses this knowledge to guide other parts of the system. EM depends on the technology of Natural Language Processing and uses available rules of our course to get solutions of the problems. It simulates human experts in decision making or the instructor in the Education [David Ngi Chin (1987)]. This module contains the rules of the domain knowledge that help to get the correct answer of the question. As shown in Fig. (4), the input to the Expert Module is the code of the question that is represented to the student which is the output of the Question Selector. And the output of this module is the correct answer.



Fig.(4) input and output of the Expert Module

5.1. Design of the Expert Module

The methodology of this module is established on the idea of defining some features for the words that are used in the exercises that will be shown to the student. These words are put in a dictionary with the features of each one of these words as mentioned before (table #3-7). For each word in the question, we put specific codes for a group of features for the word as shown in the word table #3 (the dictionary):

As an example: the word شجرة (a tree) has the features: اسم - نبات - مؤنث - مفرد (means: noun, plant, female and single) so, it will take a code: "1 2 1 3" and so on for all words of all exercises.

The idea of defining the features of each word has many advantages:

- This module can deal with singular, double and plural nouns, male and female, and word types (اسم حرف فعل).
- By this method we can add any additional questions without changing the program, so the program can be used for any question except if it has a semantic problem.
- This idea will help us in evaluating the student answer and medicate his problems.

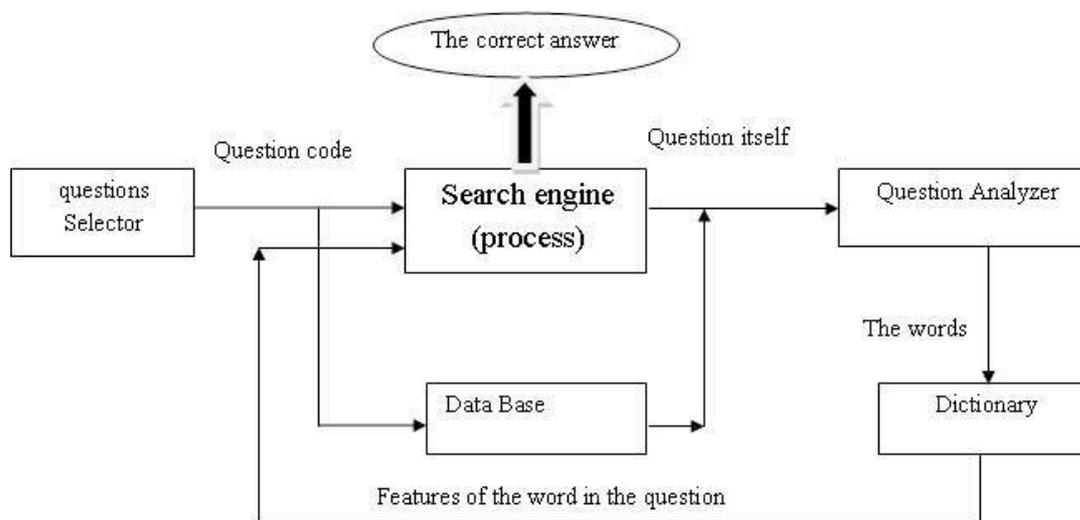


Fig. (5) the Expert Module

As shown in Fig. (5), the Expert Module consists of many components. These components are:

- **Database:** is a group of tables that contain the table of question head (problem table #1) and questions tables (questions table #2) and their relationships with some other tables.
- **The dictionary:** it has a huge number of words with the codes for each word. These codes are a type code, a gender code, count code and anatomy code. The dictionary mainly exists in the word table # 3 that mentioned before. Also the (tables #4-7) have relationships with table #3. Up to now the dictionary contains about 600 words for the first part of the curriculum.
- **The type code:** is a code for each type of the words such as the noun has code 1, the verb has a code 2 and so on. (shown in classify table #4)
- **The gender code:** appeared in the gender table such as male has a code 1 and female has a code 2. (gender table #5)
- **The count code:** is a code for the count of the word such as مفرد (single) has a code 1, مثنى (double) has a code 2 and so on. (shown in table count table #6)
- **The anatomy code:** it has the codes of the types of the noun such as انسان, حيوان, نبات, جماد, صفة (shown in anatomy table #7)
- **Question analyzer:** it takes the question, analyzes it and gets the features of the words of that question.
- **Search engine:** it has two tasks of searching:

- ✓ Taking the question code as the output of the Question Selector to get the question itself by searching in the database tables.
- ✓ Searching in the dictionary after analyzing the question by the question analyzer to get the features of each word in the question. So the system can get the correct answer that matches to these features.

5.2. Implementation of the Expert Module:

EM is implemented using Java netBeans and Microsoft Access for the database

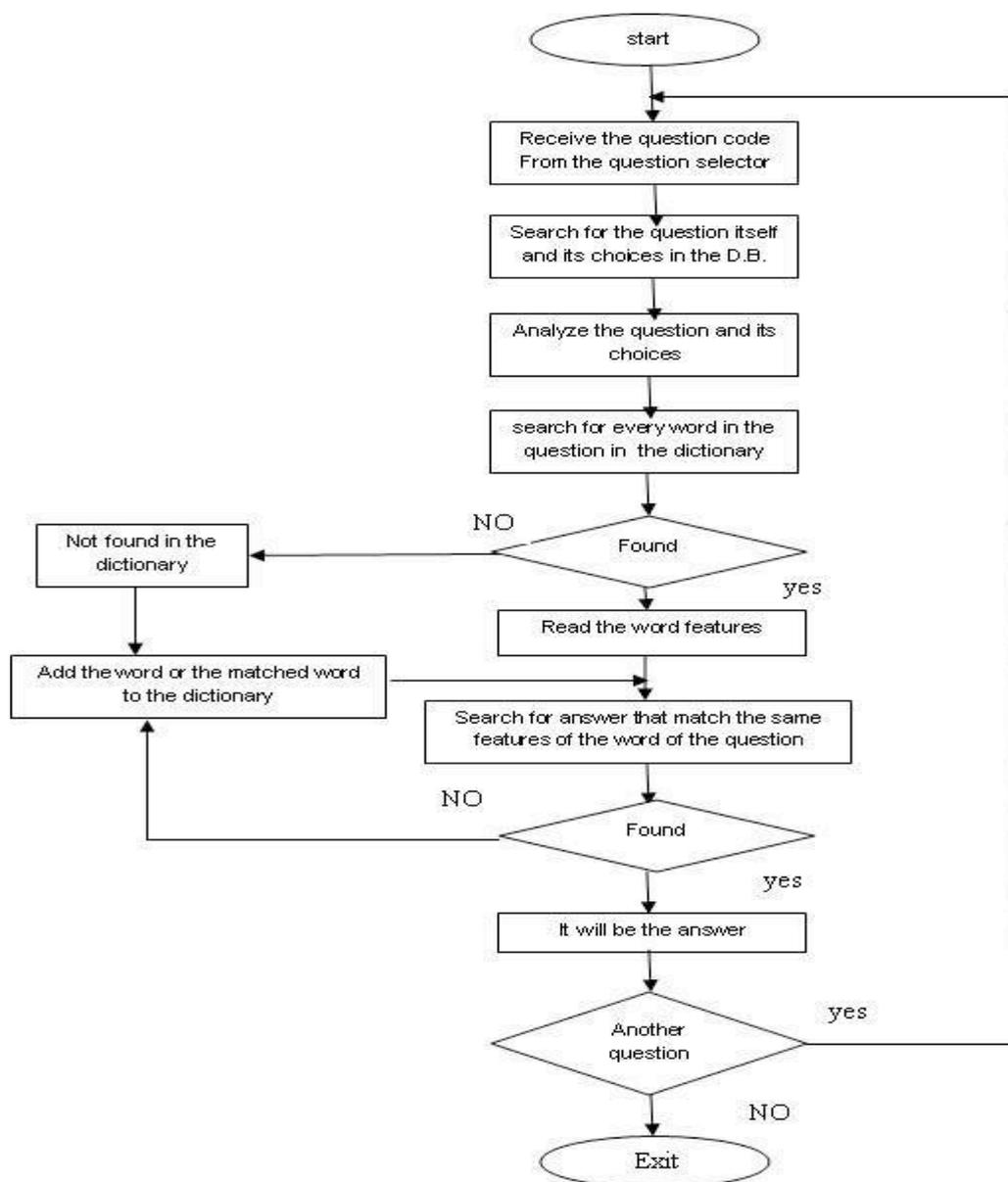


Fig. (6) the flow chart of the Expert Module

Fig. (6) shows the flow chart of the expert module. Here are the steps to get the correct answer:

1. The Expert Module receives the question code from the Question Selector as input.

2. Search for the question itself in the database tables (tables #1, #2 and their relationships)
3. Analyze the question and its choices (if exists) and search for its words in the dictionary
4. If found, read question features code and search for the matched answer (that match the same features)
5. If not, then it is not in the dictionary, so the word can be added and repeat
6. If there is another question repeat, if not Exit

6. The output of the Expert Module:

Fig. (7) shows the output form of the Expert module for a specific question.

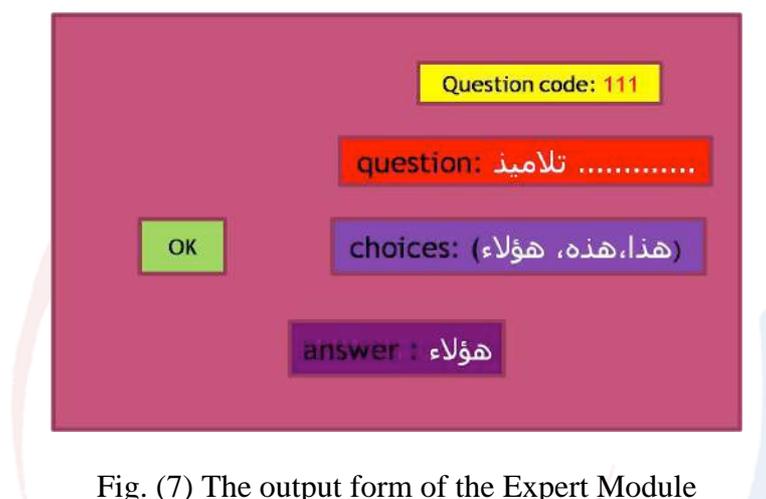


Fig. (7) The output form of the Expert Module

7. Conclusion

The research problem is to design and implement a module that takes a question of the domain as input and gives a solution for this question as output. This domain is the Grammar of the Arabic language for the elementary schools in Egypt. In this research, an Expert Module was designed and implemented to solve the question on the same time that it is represented to the student. The module is tested and worked for all types of questions that are mentioned before. But the only constraint for EM is being that the question has a semantic problem such as an essay question.

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Effects of Two Implementations of Cross-Age Repeated Reading Treatments

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Abstract

Learning sight words enables learners to decode unfamiliar words by sight, thus learners can read words in text more efficiently. Penner-Wilger (2008) asserted that when achieving oral reading fluency (ORF) learners would have no problem identifying letters, syllables, and high frequency words. Preliminary finding showed integration of ABRACADABRA (ABRA) online activities into EFL classroom beneficial to young learners' sight word reading. Since Vacca, Vacca, Gove, Burkey, Lenhart and McKeon proposed cross-age repeated reading as an effective strategy, this study compared effects of two implementations of ABRA activities on improving learners' decoding ability and ORF. Twenty students were randomly assigned to receive instructor-led or learner-led cross-age repeated reading treatments. Forty three sight words and one reading article were practiced over a 6-week period by pairing a fourth grader and a fifth grader. With respective reliability coefficients of .869, .978, and .870 for decoding test, ORF test, and questionnaire, descriptive statistics showed instructor-led group had higher gain scores than learner-led group in both decoding and ORF performance. With an average positive attitude of 84% for instructor-led group and 77% for learner-led group, results revealed significant differences in: (1) instructor-led group was highly positive toward using ABRA story to facilitate their ORF; (2) tutees in instructor-led group highly agreed tutors' explicit recording of their decoding errors was useful in improving tutors' ORF; (3) instructor-led group considered ABRA story useful in enhancing their reading comprehension.

Keywords: cross-age repeated reading, sight word decoding, oral reading fluency

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Introduction

Reading ability is the most significant basis of many other academic skills (Flanagan, West, & Walston, 2004; Lyon, 1998, 2003). In addition, evidence shows that the early acquisition of reading skills could avoid the future failure and difficulties of reading (Snow, Burns, & Griffin, 1998). In other words, students who fail to obtain sufficient reading skills during early primary school years would likely experience learning difficulty. Therefore, it is important to help young language learners acquire adequate reading skills. In order to prepare them to achieve successful reading, several linguistic processes such as letter identification, word recognition, and decoding are required. The present study thus focuses on these dimensions to improve students' acquisition of sight words and their oral reading fluency (ORF).

Based on prior studies, learning sight words enables learners to decode unfamiliar words by sight, thus learners can read words in text more efficiently (Ehri, 2005). Penner-Wilger (2008) further asserted that when achieving ORF learners would have no problem identifying letters, syllables, and high frequency words. Building on these studies, preliminary finding showed the integration of ABRACADABRA (ABRA) online activities into EFL classroom beneficial to young learners' sight word reading (Savage, Abrami, Hipps & Deault, 2008). On the other hand, Vacca, Vacca, Gove, Burkey, Lenhart and McKeon (2006) proposed that cross-age repeated reading is an effective strategy to promote language acquisition. To investigate the efficiency of different implementations of the cross-age repeated reading strategy, this study therefore compares the effects of instructor-led and learner-led cross-age repeated reading instruction on improving EFL young learners' acquisition of sight words and their ORF.

Literature Review

Features of Instructor-Led Instruction and Learner-Led Instruction

Mithaug, Mithaug, Agran, Martin, and Wehmeyer (2003) indicated that direct instruction from teachers may particularly help with the explanation of new skills and processes. Horton (2011) defined instructor-led instruction as a teaching style in which the instructor completely controls the content and pace while the learners are seen as passive. Furthermore, in the instructor-led settings, the instructors could be regarded as the helpers, who have gained more knowledge and experience in terms of the teaching and learning materials. For the instructors, namely, the ones who facilitate learning, they help with the delivery of the materials to the learners, and who are in charge of answering questions and solving the problems raised, adjusting the course to meet the needs of the learners, providing authority the learners need for motivation (Horton, 2011).

On the other hand, previous study also revealed that the greater the control of students over their learning, the more effective towards learning they develop (Biggs & Tang, 2011). According to Horton (2011), learner-led instruction is a teaching style in which the learners set the pace of the activities and decide the sequence of them. In learner-led instruction, the learners actively determine the time to take the course, which activities to perform, and when to end the activity. In the instructor-led instruction, the instructors are responsible for designing the activities, solving

problems, and motivating the students in the process. Learner-led teaching style pays more attention to the students' responsibility of their own learning and they are not required to follow the instructor's schedule. Instead, when and how much they will learn depend on their willingness. Furthermore, it is proposed that learner-led instruction prepares the learners to be independent by having more responsibility in the process of learning, and the students are taken as the center of the whole learning experience. Last but not least, learner-led instruction also emphasizes the differences between learners in terms of their learning pace, learning styles and etc.

Features of Blended Learning

Neumeier (2005) describes blended learning as a combination of face-to-face and computer-assisted learning in a single teaching and learning environment. Leakey and Ranchoux (2006) also showed that the learners' attitudes towards blended learning are positive and they consider this way motivating and prefer this way to the traditional classroom-based learning. Horton (2011) proposed that blended learning could make the whole learning process changed from instructor-led to learner-led. The instructor-led e-learning is the way in which the instructor controls the pace of learning, while the learner-led e-learning is the one in which the learners themselves decide pace and the outcomes of the activities. Therefore, experimental studies should be conducted to compare the effectiveness between the instructor-led e-learning and the learner-led e-learning, and further explore learners' attitudes toward these two types of e-learning. On the other hand, by mixing the Internet or digital media with traditional classroom instructions, blended learning have been regarded as the different things personalized for different people (Driscoll, 2003). In blended learning, academically the learning involves something old as well as the newest ones (Driscoll, 2003).

Significance of Sight Words

Sight words are defined as the words that could be recognized with little effort or could be read quickly without detailed decoding (Rasinski & Padak, 2008). It is shown that when learners read texts, printed words are the ideas that come to their mind. After their eyes picked up the words, they would try to decode the words, which will further activate meanings processing (Rayner & Pollatsek, 1989). Words are the fundamental units that readers firstly pick up by the printed words to construct meaning. Therefore, the major way to develop reading skills is to facilitate the accurate and automatic recognition of written words (Ehri, 2005). Hughes and Hall (1989) also defined sight words as a visible and obvious response controlled by a printed stimulus. Thus, it is shown that when learners read texts, printed words are the ideas that come to their mind. After their eyes picked up the words, they would try to decode the words, which will further activate meanings processing (Rayner & Pollatsek, 1989). It has been shown that the development of sight word reading competences will enhance the children's early reading foundation skills (Carnine, Silbert & Tarver, 2004).

Significance of Oral Reading Fluency

Oral reading fluency is defined as the translation of written text into an output orally with rate and accuracy (Speece & Ritchey, 2005). Oral Reading fluency has been

regarded as a crucial elements in the success of learners' future reading when they are still in primary grades (National Reading Panel, 2000). Researchers pointed out that the achievement of oral reading fluency in primary grades would help produce good comprehension (Schwanenflugel, Meisinger, Wisenbaker, Kuhn, Strauss, & Morris, 2006). In addition, Schwanenflugel et al. (2006) proposed that oral reading fluency could be a predictor for the success of reading comprehension, and it is more efficient than any other comprehensive tests of reading.

The Relationship Between Sight Words and Oral Reading Fluency

Readers' ability to decode words with speed and accuracy builds the foundation in fundamental vocabulary, which further leads to the fluency of the reading (Carreker, 1999). Adams (1990) asserted that to achieve fluency reading with understanding, readers are required to recognize about 95 percent of the sight words. Therefore, sight word instruction positively makes difference to fluent reading (Carreker, 1999). On the other hand, Adams (1990) pointed out that usually the less fluent readers would pay more attention to the individual words, and therefore the ability to identify words well is an important reading skill, which helps students with the transition from word recognition in isolation to the fluent reading of the context. One of the elements of oral reading fluency, automaticity, illustrates that the fast and accurate ability of identifying words with less or even no efforts could actually serve as the predictor of the learners' future success of comprehension of reading (Carreker, 1999). Therefore, oral reading fluency, namely, is based on the word identification with automaticity and it could facilitate the reaction of the learners towards the reading texts to form more advanced comprehension of reading (Carreker, 1999).

Repeated Reading as an Effective Reading Strategy

Previous studies indicated that repeated reading (RR) is helpful for the enhancement of reading fluency, and repeated reading is also defined as the way to get learners to repeat the same passage repetitively with smooth and accuracy until they meet a specified fluency criterion (National Institute of Child Health and Human Development, 2000). On the other hand, Samuel (1979) proposed the benefits that repeated reading bring to the improvement of oral reading fluency, resembling what previous studies recognized that the reading rates would be faster if the unskilled students receive the repeated reading instruction in a regular classroom instruction. Thus, the use of this reading strategy is to get the students to develop their fluency of reading, and further lead to the comprehension of reading. Based on prior study, repeated reading can be practiced in both whole-class and small-group instruction (National Institute of Child Health and Human Development, 2000). Undoubtedly, the strategy of repeated reading could be practiced while students are in pairs. They could be reading to each other, and this kind of grouping could be either same-age or cross-age.

Significance of Cross-Age Paired Reading

Vacca, Vacca, Gove, McKeon, Burkey, and Lenhert (2006) suggested that one method to conduct fluency practice is to use a paired reading strategy with peer tutoring. Moreover, Bergeron (1998) suggested that when it comes to the paired reading strategy, the pairing could be either same-age or cross-age. Vacca et al. (2006)

further suggested that the most advocated structured pair work would be the one in which a more able child (tutor) helps a less able child (tutee) while they are doing a cooperative learning. One way to provide assisted reading is to get the less fluent reader to read with a more fluent partner, and that partner could be a classmate (Rasinski, et al., 2005). Vacca et al. (2006) showed that cross-age reading accesses the young learners with legitimate reason for oral reading performance and literary experiences.

The specific research questions are as follows.

1. Is instructor-led instruction effective in promoting EFL young learners' acquisition of sight words? Is learner-led instruction effective in promoting EFL young learners' acquisition of sight words? Between these two types of instruction, which one is more effective in promoting EFL young learners' acquisition of sight words?
2. Is instructor-led cross-age repeated reading effective in improving EFL young learners' ORF? Is learner-led cross-age repeated reading effective in improving EFL young learners' ORF? Between the two types of cross-age repeated reading training, which one is more effective in improving EFL young learners' ORF?
3. What are the learners' attitudes toward the instructor-led blended instruction and the learner-led blended instruction?

Methodology

Participants

The participants comprised of 20 students including 10 fourth graders and 10 fifth graders from a supplementary program in a public elementary school in central Taiwan. One fourth grader was paired with a fifth grader of better sight words and ORF performance. The ten student pairs were evenly divided into two groups to respectively receive the instructor-led cross-age repeated reading instruction or the learner-led cross-age repeated reading instruction.

Teaching materials

Forty three sight words, in accordance with the vocabulary in the high frequency wordlist compiled by Taiwan's Ministry of Education, were chosen from the ABRACADABRA (ABRA) website. Additionally, a reading passage "The Frogs and Well" was selected from the ABRA as the ORF practice paragraph and practiced during the 4-week experiment. The reading passage was comprised of 237 words. The first half of the passage containing 146 words served as the teaching material while the second half of the passage containing 91 words served as the ORF pretest and the posttest.

Treatments

The experiment lasted six weeks including four weeks of intervention and two weeks for pretest and posttest. The instructor-led group was assigned to a regular classroom equipped with a computer with internet access and a projector, whereas the learner-led group was assigned to a computer lab with one-on-one computer use. The

teaching time allocated for the sight words instruction is 60 minutes (40 minutes + 20 minutes), whereas that for the ORF instruction is 80 minutes (60 minutes + 20 minutes) per week, respectively.

During the sight words instruction, both groups received the same 40 minutes of treatment using flashcards and PPTs. However, in the other 20 minutes, in the instructor-led classroom the teacher accessed the ABRA website, projected it to a screen, and guided the students to learn the sight words using the ABRA activities. In contrast, in the learner-led classroom every student had an individual access to the ABRA website to learn sight words.

For the ORF training, in each cross-age repeated reading training session, the teacher first trained the tutors to practice reading the ABRA passage “The Frogs and Well”. Both groups received the same 60 minutes of cross-age repeated reading training. In a similar vein, in the other 20 minutes, in the instructor-led classroom the teacher guided the students to practice oral reading “The Frogs and Well” passage through choral reading technique, whereas in the learner-led classroom every student accessed the ABRA website to read aloud the same assigned passage under his/her own pace by using a headset.

Thus, the major difference between the two blended treatments lies in the 40 minutes (20 minutes for sight word decoding and 20 minutes for passage oral reading) of instructor-led class wide access vs. learner-led individual access to the ABRA online activities for practicing sight words and passage reading.

Instruments

The pretest included both sight words and an oral reading passage. Twenty sight words selected from the 43 taught sight words were used to measure the learners’ decoding achievement while the 91-word passage selected from the ABRA website was used to measure the learners’ oral reading fluency proficiency. The posttest was the same as the pretest. Additionally, a questionnaire, including four parts of twenty-one 4-point Likert-scale questions, was distributed to the participants after the treatment to investigate the learners’ attitudes toward these two implementations of blended instruction. The reliability coefficients of the decoding test, the ORF test and the questionnaire were .869, .978, and .870 respectively.

Data collection

According to the pretest and posttest scores, descriptive statistics were performed and paired-samples *t* tests were further conducted to see if there was any significant growth in the participants’ acquisition of sight words and improvement in their ORF after receiving the four-week treatment. To compare the effects between the two implementations of blended treatments, independent samples *t* tests were used to compare the two research groups’ performance.

Results and Discussion

In order to answer the research questions, independent samples *t*-tests were used to determine whether the two groups were homogeneous before the treatment. In Table 1,

the independent samples *t* test on the two groups' pretest performance in the sight words decoding revealed that there is no significant difference between the two groups ($t = .044$, $p = .966$). In Table 2, the independent samples *t* test on the two groups' pretest ORF performance likewise showed that there is no significant difference between the two groups ($t = .342$, $p = .736$). Hence, before the treatment the two groups are homogeneous in their sight word decoding and ORF performance.

Table 1. Descriptive Statistics and Independent Samples T Test Result on Sight Word Decoding Pretest Scores for the Two Groups.

	N	Mean	SD	Minimal	Maximal	<i>t</i>	<i>p</i>
Instructor-led group	10	6.20	4.62	1	4	.044	.966
Learner-led group	10	6.30	6.30	1	18		

Maximal score: 20, $p > .05$

Table 2. Descriptive Statistics and Independent Samples T Test Result on ORF Pretest Scores for the Two Groups.

	N	Mean	SD	Minimal	Maximal	<i>t</i>	<i>p</i>
Instructor-led group	10	12.10	13.63	0	33	.342	.736
Learner-led group	10	14.30	15.07	0	43		

Maximal score: 91, $p > .05$

To answer the first research question, in Table 3, paired-samples *t* test analysis on comparison of the sight word decoding pretest and posttest scores for the instructor-led group revealed significant difference ($t = 2.851$, $p = .019$). This indicates that the instructor-led group had made significant progress in sight word decoding.

Table 3. Descriptive Statistics and Paired-samples T Test Result on Sight Word Decoding Pretest and Posttest Scores for the Instructor-led Group.

	N	Mean	SD	Minimal	Maximal	<i>t</i>	<i>p</i>
Pretest	10	6.20	4.622	1	4	2.851	.019
Posttest	10	12.40	5.337	12	20		

Maximal score: 20, $p < .05$

In Table 4, paired-samples *t* test analysis on the sight word decoding pretest and posttest scores the learner-led group showed no significant difference ($t = 1.854$, $p = .97$). This indicates that though the learner-led group had made some progress, it was not strong enough to show significant improvement in their sight word decoding.

Table 4. Descriptive Statistics and Paired-samples T Test Result on Sight Word Decoding Pretest and Posttest Scores for the Learner-led Group.

	N	Mean	SD	Minimal	Maximal	<i>t</i>	<i>p</i>
Pretest	10	6.30	6.30	1	18	1.854	.097
Posttest	10	11.00	11.00	3	18		

Maximal score: 20, $p > .05$

Since both groups made improvements in their sight word decoding performance after receiving the respective treatment, comparison on sight word decoding posttest scores between the two groups was further made. As shown in Table 5, the independent samples *t* test on the two groups' posttest performance revealed no significant difference ($t = 0.614$, $p = .547$) indicating that there is no significant inter-group difference.

Table 5. Descriptive Statistics and Independent Samples T Test Result on Sight Word Decoding Posttest Scores for the Two Groups.

	N	Mean	SD	Minimal	Maximal	<i>t</i>	<i>p</i>
Instructor-led group	10	12.40	5.337	12	20	.614	.547
Learner-led group	10	11.00	4.853	3	18		

Maximal score: 20, $p > .05$

As there is no significant difference in sight words decoding posttest scores between the two groups, the two groups gain scores were shown in Table 6. The gain score of the instructor-led group was 6.20, whereas that for the learner-led group was 4.70; this indicated that the instructor-led group performed better than the learner-led group.

Table 6. Descriptive Statistics and Independent Samples T Test Result on Sight Word Decoding Gain Scores for the Two Groups.

	N	Mean	SD	<i>t</i>	<i>p</i>
Instructor-led group	10	6.20	2.150	1.301	.210
Learner-led group	10	4.70	2.946		

Maximal score: 20, $p > .05$

To answer the second question, the descriptive statistics and the paired-samples *t* test analyses were used to compare the intra-group performance. In Table 7, paired-samples *t* test analysis on the ORF pretest and posttest scores for the instructor-led group revealed that the instructor-led group made progress in ORF though statistically not remarkable ($t = 1.303$, $p = .225$). It's likely that the small sample size of the current study which makes it much more difficult to reach a significant level.

Table 7. Descriptive Statistics and Paired-samples T Test Result on ORF Pretest and Posttest Scores for the Instructor-led Cross-age Group.

	N	Mean	SD	Minimal	Maximal	<i>t</i>	<i>p</i>
Pretest	10	12.10	13.634	0	33	1.303	.225
Posttest	10	24.70	20.078	1	53		

Maximal score: 91, $p > .05$

From Table 8, paired-samples *t* test analysis on the ORF pretest and posttest scores for the learner-led group revealed that the learner-led group made some progress although not significant ($t = 0.813$, $p = .437$).

Table 8. Descriptive Statistics and Paired-samples T Test Result on ORF Pretest and Posttest Scores for the Learner-led Cross-age Group.

	N	Mean	SD	Minimal	Maximal	<i>t</i>	<i>p</i>
Pretest	10	14.30	15.071	0	43	.813	.437
Posttest	10	20.10	13.510	4	40		

Maximal score: 91, $p > .05$

To compare the two groups' ORF posttest performance, Table 9 revealed that the *p* value was .551 indicating insignificant difference has been found between the two groups. Nevertheless, as shown in Table 10 the gain score of the instructor-led group was 12.60, while that for the learner-led group was 5.80; this indicated that the instructor-led group had higher gain scores than the learner-led group.

Table 9. Descriptive Statistics and Independent Samples T Test Result on ORF Posttest Scores for the Two Groups.

	N	Mean	SD	<i>t</i>	<i>p</i>
Instructor-led group	10	24.70	20.078	.607	.551
Learner-led group	10	20.10	13.051		

Maximal score: 91, $p > .05$

Table 10. Descriptive Statistics and Independent Samples T Test Result on ORF Gain Score for the Two Groups.

	N	Mean	SD	<i>t</i>	<i>p</i>
Instructor-led group	10	12.60	9.548	1.781	.092
Learner-led group	10	5.80	7.391		

Maximal score: 91, $p > .05$

In summary, no significant intergroup differences were found in either the sight word decoding posttest or the ORF posttest; however, the descriptive statistics shown in Table 6 and Table 10 suggested that the instructor-led group constantly had higher

gain scores than the learner-led group in both the sight word decoding and the ORF performance. Thus, questionnaire was used to explore the participants' respective attitudes toward the two kinds of intervention.

The treatment questionnaire consists of four parts including 21 questions. The participants were asked to rate their perception by choosing 1 (strongly disagree), 2 (disagree), 3 (agree), and 4 (strongly agree). Part I of the questionnaire (Items 1~ 3) was used to find out the learners' respective attitudes toward using flashcards to assist their sight word learning. In Table 11, descriptive statistics and independent samples *t* test analyses revealed that the participants in both groups agreed with the use of flashcards to assist their sight word learning ($t = 1.080, p = .347$).

Table 11. The Participants' Attitudes toward Using Flashcards to Assist their Sight Words Learning.

Group	Instructor-led group		Learner-led group		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
1	3.40	.966	3.20	.919	.474	.614
2	3.40	.699	3.00	1.054	1.000	.331
3	3.60	.699	3.00	.816	1.765	.095
Average	3.47	.788	3.07	.930	1.080	.347

Maximal score: 4, $p > .05$

Part II to Part IV of the questionnaire were used to answer the third research question. For Part II of the questionnaire (Items 4~6), Table 12 showed the average mean for the instructor-led group was 3.47 and the learner-led group was 2.93. Though the average mean score of the instructor-led group was higher than that of the learner-led group, the statistical analysis did not yield significant difference between the two groups ($t = 1.679, p = .153$). This indicates that both groups considered the ABRA story useful in facilitating their ORF. Focusing on Item 4, with respective mean scores of 3.70 and 3.10 for the instructor-led group and the learner-led group, the instructor-led group was found to have significantly more positive attitude toward using the ABRA story to facilitate their ORF ($t = 2.151, p = .045$).

Table 12. The Participants' Attitudes toward Using the ABRA Story to Facilitate their ORF.

Group	Instructor-led group		Learner-led group		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
4	3.70	.483	3.10	.738	2.151	*.045
5	3.20	.632	2.90	.738	.976	.342
6	3.50	.527	2.80	1.033	1.909	.072
Average	3.47	.547	2.93	.836	1.679	.153

Maximal score: 4, $p > .05$

For Part III of the questionnaire (Items 7~12), Table 13 showed that the average mean scores were 3.25 and 2.68 for the instructor-led group and the learner-led group respectively. This revealed that the participants in both groups agreed with the use of

the cross-age repeated reading tutoring instruction. Moreover, centering on Item 8, the independent samples t test analysis indicated that the tutees in the instructor-led group had significantly more positive attitude than the learner-led group in the tutors' explicit recording of their decoding errors ($t = 2.238, p = .046$). This indicates that the tutees in the instructor-led group highly appreciated the interaction between the tutors and the tutees.

Table 13. The Participants' Attitudes toward the Cross-age Repeated Reading Tutoring Instruction.

Group Item	Instructor-led group		Learner-led group		t	p
	Mean	SD	Mean	SD		
7	3.40	.966	2.50	1.179	1.868	0.76
8	3.50	.707	2.70	.949	2.238	*.046
9	3.00	.816	2.60	.699	1.177	.255
10	3.30	.949	2.60	1.075	1.544	.140
11	2.90	.994	2.40	1.075	1.080	.295
12	3.40	.699	3.30	.483	.374	.714
Average	3.25	.855	2.68	.910	1.380	.432

Maximal: 4, $p > .05$

For Part IV of the questionnaire (Items 13~21), Table 14 showed that the average mean scores were 3.40 and 3.07 for the instructor-led and the learner-led groups respectively. Result of the statistical analysis indicated that both groups were highly positive toward using the ABRA website to assist their acquisition of sight words and improve their ORF ($t = 1.145, p = .323$). Furthermore, focusing on Item 15, the mean score of the instructor-led group was 3.70, whereas that for the learner-led group was 3.20. The independent samples t test analysis revealed that the participants in the instructor-led group had significantly more positive attitude toward using the ABRA website to assist their acquisition of sight words and ORF through the instructor's guidance ($t = 2.466, p = .024$).

Table 14. The Participants' Attitudes toward Using the ABRA Website to Assist their Acquisition of Sight Words and Improve their ORF.

Group	Instructor-led group		Learner-led group		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
13	3.20	.919	3.50	.527	.896	.382
14	3.60	.516	3.30	.483	1.342	.196
15	3.70	.483	3.20	.422	2.466	*.024
16	3.10	.738	3.50	.527	1.395	.180
17	3.30	.675	3.60	.516	1.116	.279
18	3.40	.699	3.50	.527	.361	.722
19	3.30	.483	3.10	.568	.849	.407
20	3.60	.516	3.80	.422	.949	.355
21	3.40	.516	3.10	.876	.933	.363
Average	3.40	.606	3.07	.540	1.145	.323

Maximal score: 4, $p > .05$

Table 15. The Two Groups' Average Mean Scores on Four Parts of the Questionnaire.

	Instructor-led group	Learner-led group
Part I (Items 1~3)	3.47 (86.7%)	3.07 (76.7%)
Part II (Items 4~6)	3.47 (86.7%)	2.93 (73.3%)
Part III (Items 7~12)	3.25 (81.2%)	2.68 (67.1%)
Part IV (Items 13~21)	3.40 (85.0%)	3.07 (85.0%)

From Table 15, results on Part I through Part III of the questionnaire revealed that the instructor-led group held more positive perceptions toward the use of flashcards to assist their acquisition of sight words, toward using the ABRA story to facilitate their ORF, and toward receiving the cross-age repeated reading instruction than the learner-led group. The average mean scores were overall located above 2.8 (70%) except for Part III. This revealed that the learner-led group was not strongly positively regarding the use of cross-age repeated reading instruction as the average point is 2.69 (67.1%), and this might be the main cause for the different sight words and ORF performance between the two groups.

Nevertheless, the two group participants' attitudes toward using the ABRA online resource to learn sight words and to improve their ORF were equally positive (85%). Therefore, comparative results found in the present study provided some support and extended the finding for previous studies in that employing either the instructor-led instruction or the learner-led instruction had positive effects on EFL young learners' acquisition of sight words. Additionally, the present study revealed that the two implementations of cross-age repeated reading blended instruction effectively enhanced EFL young learners' oral reading fluency.

Conclusion

In this preliminary experimental study, the researchers have compared the effects of two types of implementation of cross-age repeated reading instruction on improving EFL young learners' acquisition of sight words and oral reading fluency. The findings from the study are worth summarizing. First, students in both the instructor-led group and the learner-led group showed improvement in sight words decoding and ORF. Second, the instructor-led group was found to have greater improvement in decoding and oral reading fluency than their counter group. It's likely due to the small size of the sampling and the short duration of the experiment as the learners need more guidance from the teacher at the beginning. Thus, a larger sample size and a longitudinal study is suggested. Though statistical significance had not been confirmed, descriptive statistics had shown that both types of blended instruction were effective in enhancing the students' sight word decoding and improving their ORF. Thus, instructors are suggested to apply either the instructor-led instruction or the learner-led instruction when teaching EFL young learners to acquire sight words and to improve their oral reading fluency.

Alternatively, the instructor-led instruction can be used at first, as learners become more familiar with the learning procedures, the learners-led instruction can be adopted sequentially. Care must be taken in interpreting and generalizing the findings of the current study, due to limitations inherent to the study design. The population of the present study was limited to elementary school students and the participants were recruited from only one elementary school in central Taiwan. Thus, it might not be appropriate to generalize the results to students with different proficiency levels or students from different geographical areas of Taiwan. Future studies are suggested to include more participants from different geographical regions in Taiwan. Moreover, when running the independent samples t test, each subgroup is recommended to have at least 25 students. Thus, future studies may include two or more classes of students to conduct the experiment. Lastly, future study may also use interview to not only get deeper information on students' attitudes toward the different types of blended instruction but also to triangulate the data.

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*The Follow-Up Study on the Impact of the 101s Positive Discipline Parent Training
on First-Grade Children's Executive Function Development*

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Abstract

The purposes of the current study were to investigate the impact of the 101s positive discipline parent training program; the national winning-award program in the U.S. for training parent, teachers, and early childhood educators on the maintenance of the parenting practices and their first-grade children's executive function skills. It contains 101 techniques for caregivers to respond to their children with warmth and respect in order to promote children's social-emotional and cognitive skills. A follow-up research design with comparison group was utilized in one school setting where the 101s positive discipline for parent training had been implemented. The target group included 36 parents who had participated in the 101s training program for 3 years since their children were in the preschool periods and their 36 first-grade children. The comparison group included 39 parents who had never participated in the parent training program and their 39 first-grade children. The 101s Parent Interaction Checklist was used to measure the parents' interaction practices. The Behavior Rating Inventory of Executive Function was used to rate the first-grade children's executive function. A series of MANCOVA was employed to evaluate the mean difference scores on the parents' parenting practice and first-grade children's executive function between the sample in the target and comparison groups. The results showed that the 101s positive discipline parents training program had a strong positive impact on the maintenance of the parenting practice and children's executive function. The discussions, limitations, implications and suggestions are discussed.

Keywords: The 101s: A guide to positive discipline, Parenting practices, Executive function, BRIEF

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Introduction

Presently, child abuse problem is steadily increasing in Thailand. The survey of One Stop Crisis Center (OSCC) in 2012 showed an increasing number of abused children recorded from 2005 to 2011. The record in 2005 showed that the number of abused children was 5,886 and increased to 11,491 in 2011. It indicated that child-abuse problem still could not be solved. The finding suggested that parenting knowledge in early childhood development as well as effective parenting skills should be put on the national agenda in order to reduce the number of abused child. It is important that the main caregivers, especially parents, realize that their parenting practices significantly impact their children's learning and development. Appropriate child rearing does not only keep the children safe from abuse, violence, and neglect, but it also provides them with a safe and secure environment that would support their social-emotional and cognitive skills, and psychological and high-order thinking development. Unfortunately, according to the national survey in 2011, Thai children had the scores on intelligence quotient (IQ) and emotional quotient (EQ) lower than the national standard (Ministry of Public Health of Thailand, 2011). Moreover, the report from Program for International Student Assessment (PISA, 2012) also showed that the scores of Thai children on Math, Science and reading were lower than averaged scores, comparing to other countries in Asia pacific. Therefore, intervention programs focusing on effective parenting practices for promoting children's social-emotional and cognitive development are needed.

A large amount of research indicated that early childhood is the critical period of social-emotional and cognitive development. Social-emotional and cognitive skills are related to the processes of Executive function (EF). EF refers to the set of cognitive processes for regulating thoughts and actions that lead to the goal-directed behaviors (Monette, Bigras, & Guay, 2011). The processes of EF rely on prefrontal cortex, the brain area developed dramatically in early childhood. There are 5 domains of EF including inhibit, shift, emotional control, working memory, and plan/organization (Gioia, Isquith, Guy, & Kenworthy, 2000). In early life, children use all the EF domains to regulate their emotions and behaviors in order to learn and adjust themselves to surrounded environments. As growing up, the children use their EF skills to retrieve their relevant experiences to relate to a current situation in order to manage their emotions and thoughts for attaining goal-directed behaviors.

EF plays an important role in children's life and school success. Previous research has showed the significant correlations between EF skills and academic achievements. For example, previous research found that working memory and inhibition were linked to children's English, Mathematics, and Science achievements (St. Clair-Thompson & Gathercole, 2006). Furthermore, the research conducted by Monette et al. (2011) studied the role of the EF skills in school achievement at the end of Grade 1. The results showed that Mathematics and reading skills of the first grade-children were significantly associated with their EF skills in preschool. Moreover, previous research found that EF skills in early childhood period were significant related to social-emotional skills and success in school in later ages of life (Monette et al., 2011). It could be concluded from the findings that since EF skills acquired in early ages significantly predict social-emotional and cognitive skills and academic achievement in later ages, it was significant to ensure that children's EF skills were promoted.

The significance of EF leads to the increasing numbers of research studies on the factors that have an influence on EF development in children. Pertinent in multidisciplinary research claimed that the main factor influencing EF development is nature and nurture. By nature, any abnormal growth and development in the prefrontal lobes of children leads to poor EF skills. For example, children diagnosed as having ADD/ADHD lack abilities to achieve a goal-directed behavior. They were unable to control their emotions and regulate their behaviors to the demands of the environment. They could not recall and follow multi-steps directions. They needed help to start, stay on, and complete tasks (Biederman, 2004). However, nurturing children with poor EF by nature with responsive care and understanding could help the children develop their EF skills. Parenting practice regarding as nurture is a significant factor that could either promote or inhibit EF development in children. Bernier et al. (2010) found that the autonomy-support parenting is the strongest predictor of children's EF skills including working memory, impulse control, and set shifting. The results from the research conducted by Rhoades et al. (2011) consistently showed that 36-month-old children who were exposed to more maternal positive engagement and lower negative intrusiveness were prone to have higher EF skills including working memory, inhibitory, and attention flexibility.

Increasing amount of research studies attempted to develop intervention programs for promoting parenting practices and investigate their impacts on children's social-emotional, cognitive, and EF development. One of the effective programs for promoting parenting practices was the 101s positive discipline parent training program, the national winning-award program in the U.S. for training parents, teachers, and early childhood educators. This program provided the trained caregivers with the 101s: A Guide to Positive Discipline techniques, authored by Dr. Katharine C. Kersey, for interacting with children with respect and responsive care instead of punishment and violence. The purpose of the 101s techniques was twofold: to respond to child's basic psychological needs and to teach and train expected behaviors. A growing body of research in the 101s positive discipline training program consistently showed the positive impact on caregivers' interaction practices and children's prosocial skills and EF development.

In 2008, Masterson found in her research, conducted to study the impact of the 101s teacher training on teacher interaction practices and children's prosocial skills with 34 teachers in an urban school in the United States, that the 101s had significantly positive impact on the teacher interaction practices and prosocial skills in their classroom (Masterson, 2008). In Thailand, Thanasetkorn (2009a) found that the teachers in 101s training group had significantly higher scores on positive interaction practices and lower scores on negative interaction practices. The children in 101s teacher training group also significantly had higher scores on positive teacher-child relationships, school adjustment skills, and academic achievement, comparing to children in the control group. Likewise, the research in the 101s parent training conducted by Thanasetkorn (2009b) also showed the significantly positive impacts of the 101s parent training on parent interaction practices, parent-child relationships, children's school adjustment and achievement. The findings from the previous research found that after receiving the 101s positive discipline training, the caregivers, both parents and teachers, were more likely to use the 101s positive discipline techniques to interaction with their children and less likely to use negative discipline

and punishment, comparing to their control groups. The researchers suggested that a replication of research was needed to confirm the reliability of the findings.

In later year, Thanasetkorn and colleagues (2015) conducted a replicating research, using the same methods of Thanasetkorn (2009b), with 54 parents and their 3 to 5-year-old children in 2 schools to study the impact of the 101s positive discipline parent training on parent interaction practices and preschooler's EF skills. In their research, replicating quasi-experimental pretest – posttest control group research design was utilized. One school was assigned to be The 101s training group and the other school was assigned to be the control group. Before implementing the training program, the parents in both groups were asked to rate their own parenting practice, using the 101s parent interaction checklist (101s PIC) and rate their children's EF skills, using the Behavior Rating Inventory of Executive Function (BRIEF®, 2003). A series of MANCOVA was performed to investigate the significant differences in the dependent variables between two groups.

The results showed that there were no significant differences in the mean scores on parent interaction practices and children's EF skills between The 101s training group and control group. The results from pretest indicated that the parents and their children in both groups were comparable. After the pretest data collection and analysis, the parents in The 101s training school (n = 27) received a 1 half-day session led by two certified trainers at the school library from 9:00 to 12:00 on Saturday in June, 2011. At the beginning of the session, the trained parents learn the impact of the nature and nurture on child development; using lecture and question and answer methods. Then, the trainers demonstrated the fifteen techniques of The 101s positive discipline related to creating emotional support environment and behavioral adjustment, using case studies and question and answer methods. At the end of the session, the trained parents participated in role play to show their understanding of the 101s techniques. In addition to the 1 half-day session, the trained parents had to record the 101s techniques they used with their children everyday, using the record forms, in order to keep track and check the correctness of using the 101s techniques. The trained parents also had to participate in the followed-up sessions every Friday at the school library from 4:00 p.m. to 6:00 p.m. until the end of March, 2012 to discuss the use of the 101s techniques with the two trainers.

After the 40 followed-up sessions, posttest data was collected. Consistently with previous research, the results showed that the parents in The 101s training program had significantly higher scores on positive interaction practices and lower scores on negative interaction practices, comparing to the parents in the control group, as measured by the 101s PIC. Moreover, the results also showed that the parents in The 101s training group rated their children as having less problem behaviors related to EF where as the parents in the control group rated their children as having more problem behaviors related to EF, as measured by the BRIEF. This replicating research made a contribution to the confirmation of the effectiveness of the 101s training program.

The findings of previous research in the 101s positive discipline training program validated that the 101s positive discipline training program could induce the participants to change their own parenting interaction practice and engage in 101s positive discipline techniques. The findings also confirmed the positive impact of the 101s positive discipline training program on children's social-emotional and EF skills.

However, there was no follow-up research to investigate the maintenance of the skills the parents and children acquired. Therefore, the current research aimed to investigate the impact of The 101s parent training on the maintained skills in the trained parents and their children.

Methodology

Subjects

In the current study, the follow-up control group research design with purposive sampling method was utilized. The target population was the first-grade students enrolling in preschool program in the school assigned to be The 101s training group and their parents who had been continuously participating in The 101s parent training program for 3 years since their children were in the preschool levels. The sample was randomly assigned to be target group and comparison group. In the target group, there were 36 first-grade children and 36 parents who had been participated in the 101s positive discipline program for 3 years since their children were in preschool levels. In the comparison group, there were 39 first-grade children and 39 parents who had never participated in The 101s training program before.

Instruments

The General Information Questionnaires

The General information questionnaire consisted of 2 parts. First part has 8 items, regarding family background such as the highest level of parent's education, occupation, family's income, and the 101s training background. The second part has 11 items, regarding children background such as gender, age, health and daily activities.

The 101s Parent Interaction Checklist (101s PIC).

The 101s PIC is developed to observe how the parents interact with their children based on The 101s: A Guide to Positive Discipline for observing. It is a self-rating checklist, composing 25 items. The first part consisted of 15 items regarding the 101s Positive Discipline Techniques; including Emotional Support and Behavioral Adjustment. For example, "I give my child two acceptable choices when I want him/her to do something." "I look in to my child's eyes when I talk to him/her." The items are written in a 4 - point Likert-type scale, ranging from "Not at all true" (1) to "Very much true" (4). The second part consisted of items 16 to 25, regarding the framework of Negative Discipline; including Verbal Punishment, Critical/Harsh, and Physical Punishment. For example, "I say NO! or Stop! when my child conducts inappropriate behaviors." "I intimidate my child when he/she doesn't listen to me" "I spank my child." The items were written in a 4-point Likert-type scale, ranging from "Not at all true" (1) to "Very much true" (4) (Thanasetkorn, 2009b).

The Behavior Rating Inventory of Executive Function (BRIEF®)

The BRIEF is a standardized rating scale that developed to assess EF behavior of children and adolescents ages 5 - 18 at home and at school environment, developed by Gioia, Isquith, Guy, & Kenworthy (2000). There are 86 items measuring different aspects of EF including Inhibit, Shift, Emotional Control, Initiate, Working Memory, Plan/Organize. The test is a rating checklist reported by teachers or parents with the separated forms for parents and teachers. The BRIEF contains validity with two scales, the Inconsistency and Negativity scales, high internal consistency (alphas = .80 - .98) and test-retest reliability ($r_s = .82$ for parents, $.88$ for teachers). The high raw scores, T scores, and percentiles indicate the high level of impaired executive function.

Data Collection

After receiving the ethical permission from the faculty of Graduate Studies, the inform letter was sent to target school. At the beginning of the first semester, the inform consent and the general information questionnaires were distributed to parents. Then, the researchers collected the PIC and BRIEF of the parents who signed the inform consent as the secondary data from the target school.

Data Analyses

The descriptive statistic was calculated to explain the general information background of the subjects. Then, the inferential statistic of data analysis, using a series of MANCOVA was performed to evaluate the significant differences in the mean scores of the sample in the target and comparison groups on the parent interaction practices as measured by 101s PIC and EF skills as measured by BRIEF between the subjects.

Results

The Characteristics of the Participants

For parent background, demographic data of the parents in the target group showed that 10.7% ($n = 8$) of the parents who completed the questionnaires was father and 37.3% ($n = 28$) was mother. For the highest level of parent's education, most of the fathers had Master's degree (26.7%), 20% had Bachelor degree, and 1.3% had Doctorate degree. For mother, 26.7% of the mothers had Master's degree, and 21.3% had Bachelor degree. For parents' career, most of the fathers were officer worker (42.7%), whereas most of the mothers (29.3%) were housewife. Demographic data of the parents in the comparison group showed that 6.7% ($n = 5$) was father and 45.3% ($n = 34$) was mother who completed the questionnaires. For the highest level of parent's education, most of the fathers had Master's degree (29.3%), 21.3% had Bachelor degree and 1.3% had Doctorate. For mothers, 36% of the mothers had Master's degree, 14.7% had Bachelor degree and 1.3% had Doctorate degree. For parents' career, most of the fathers were officer worker (44%), whereas most of the mothers (24%) were housewife.

For children background, demographic data of the children in the target group showed that 22.7% ($n = 17$) was boy, and 25.3% ($n=19$) was girl. For health status, most of the children had no chronic disease (37.3%). 9.3 % of the children had allergy and only 1.3% had asthma. For the extra class, most of the children took extra class after school (32%). Demographic data of the children in the comparison group showed that 22.7% ($n=17$) was boy, and 29.3% ($n=22$) was girl. For health status, most of children had no chronic disease (37.3%). 5.3% of children had allergy and 1.3% had an asthma. For the extra class, most of the children took extra class after school (40%), while 12% had no extra class after school.

The Impact of the 101s Parent Training Program on the Maintenance of Parents' Interaction Practices.

A series of MANCOVA was performed to investigate the mean differences in the scores on the 101s parent interaction subscales between target and comparison groups. The multivariate test for group was significant ($F = 110.093$, $p < .001$). It indicated that Groups variable had a main effect on statistically significant differences between the mean scores on one or more than one of the EF subscales (i.e., Positive emotional support, Positive behavior management, Verbal punishment, Physical punishment and Critical/Harsh practices) (See Table 1).

Table 1 multivariate Test of PIC subscales

Effect of Pillai's trace	F	Hypothesis degree of freedom (df)	P-value	Observed power
Mother's education	2.005	5.000	.089	.637
Father's education	6.967***	5.000	.000	.997
Parents Groups	110.093***	5.000	.000	1.000

*** $p < 0.001$

The univariate followed-up F-test was performed to examine the effect of independent variables on each individual dependent variable. The results showed that the univariate followed-up F-tests for Positive emotional support, Positive behavior management, Verbal punishment, Physical punishment and Critical/Harsh practices were significant ($F = 342.513$, 203.680 , 126.262 , 301.013 , 227.714 , $p < 0.001$, consecutively), indicating that the parent interaction practices' subscales were significantly influenced by parent groups (See in Table 2).

Table 2 Univariate F- test of PIC subscales

Factor	Dependent Variable	df	F	P-value
Groups	Emotional Support	1	203.680***	.000
	Behavioral management	1	342.513***	.000
	Verbal punishment	1	301.013***	.000
	Physical punishment	1	126.262***	.000
	Critical/Harsh	1	227.714***	.000

The descriptive statistic of PIC subscales showed in the Table 3 that the parents in the target group had significantly higher mean scores on positive subscales including positive emotional support ($M = 3.68$, $SD = .33$) and Positive behavior management ($M = 3.53$, $SD = .315$), comparing to the mean scores of the parents in the comparison group on positive subscales including positive emotional support ($M = 1.82$, $SD = .69$)

and positive behavior management ($M = 1.71$, $SD = .51$). Moreover, it also showed that the parents in the target group had significantly lower mean scores on negative subscales including verbal punishment ($M = 2.02$, $SD = .52$), physical punishment ($M = 1.44$, $SD = .50$), and critical/Harsh ($M = 1.47$, $SD = .38$), comparing to the mean scores of the parents in comparison group on negative subscales including verbal punishment ($M = 3.75$, $SD = .34$), physical punishment ($M = 2.94$, $SD = .68$) and critical/harsh ($M = 3.07$, $SD = .57$).

Table 3 Descriptive statistics of PIC subscales

	Target group (n=36)		Comparison group (n=39)	
	Mean	Std. Deviation	Mean	Std. Deviation
emotional support	3.68	.34	1.83	.69
behavior management	3.53	.31	1.72	.52
verbal punishment	2.02	.52	3.76	.35
physical punishment	1.44	.50	2.95	.68
critical and Harsh	1.47	.38	3.07	.58

The Impact of the 101s Parent Training Program on the Maintenance of Children's EF Skills

A series of MANCOVA was performed to investigate the mean differences between target and comparison groups. The multivariate test for children groups was significant ($F = 81.474$, $p < .001$). It indicated that Groups variable had a main effect on statistically significant differences between the mean scores on one or more than one of the executive function subscales (i.e., inhibition, shifting, working memory, emotional control and plan/organization) (See Table 4).

Table 4 Multivariate Test of executive functions subscales

Effect of Pillai's trace	F	Hypothesis degree of freedom (df)	P-value	Observed power
Gender of children	.856	5.000	.516	.288
Children Groups	81.474***	5.000	.000	1.000

*** $p < 0.001$

The univariate followed-up F-test was performed to examine the effect of independent variables on each individual dependent variable. The results showed that the univariate followed-up F - tests for inhibition, shifting, working memory, emotional control and plan/organization were significant ($F = 287.34$, 273.04 , 99.65 , 135.58 , 201.09 , $p < 0.001$, consecutively). It indicated that the children's EF subscales were significantly influenced by parent groups (See in Table 5).

Table 5 Univariate F- test of executive functions subscales

Factor	Dependent Variable	df	F	P-value
Groups	Inhibition	1	287.348***	.000
	shifting	1	273.048***	.000
	Working memory	1	99.655***	.000
	Emotional control	1	135.584***	.000
	plan/organization	1	201.098***	.000

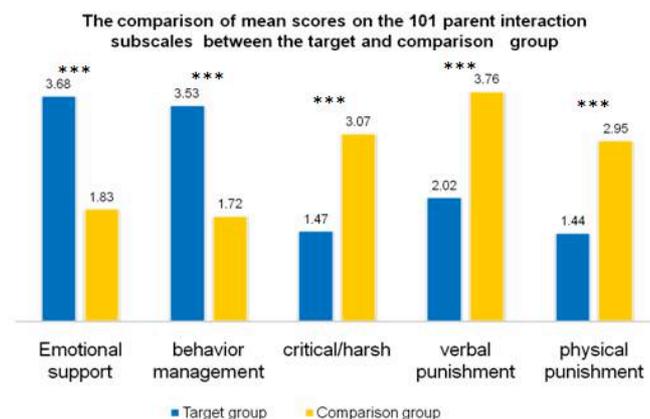
It is important to note that the mean scores on EF skills reflect the misbehaviors related to EF skills. Therefore, high mean score on each subscale shows less ability to regulate their appropriate behaviors, and vice versa. The descriptive statistic of EF subscales showed that children in the target had significantly lower mean scores on executive function subscales including inhibition ($M = 1.34$, $SD = .26$), shifting ($M = 1.23$, $SD = .22$), working memory ($M = 1.37$, $SD = .31$), emotional control ($M = 1.23$, $SD = .22$) and plan/organization ($M = 1.36$, $SD = .21$) than the mean scores of the children in comparison group on EF subscales including inhibition ($M = 2.19$, $SD = .16$), shifting ($M = 2.05$, $SD = .19$), working memory ($M = 1.99$, $SD = .21$), emotional control ($M = 1.92$, $SD = .28$) and plan/organization ($M = 2$, $SD = .18$) (See in Table 6).

Table 6 Descriptive statistics of executive functions subscales

	Target group (n=36)		Comparison group (n=39)	
	Mean	Std. Deviation	Mean	Std. Deviation
Inhibition	1.34	.26	2.19	.16
shifting	1.23	.23	2.05	.19
Working memory	2.05	.20	1.99	.21
Emotional control	1.23	.22	1.93	.29
plan/organization	1.36	.21	2.00	.18

Conclusion and Discussions

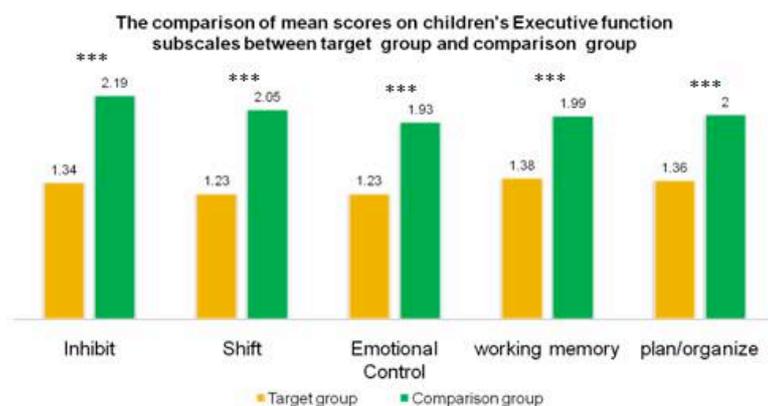
Overall, the 101s positive discipline parents training program had a strong effect on the maintenance of parent interaction practices and the children's EF skills. Figure 1 presents the comparisons of the mean scores on the 101s parents interaction practice subscales between the parents who had participated in the 101s positive discipline parents training program for three years and the parents who had never received the 101s positive discipline parents training program (comparison group) as measured by the PIC. The trained parent in the target group had significantly higher mean scores on positive subscales (i.e., Positive emotional control and Positive behavior management skills), and had significantly lower mean scores on negative subscales (i.e., Critical/Harsh, verbal punishment and physical punishment practices), comparing to the parents in the comparison group. It indicated that the parents in the target group use the positive interaction practice more often than the parents in the comparison group, and use negative interaction practices less than the parents in the comparison group.



*** $p < .001$

Figure 1 The comparison between the parents in the target group and comparison group on the 101s parent interaction subscale mean scores

For children’s EF, figure 2 presents the comparisons of mean scores of EF subscales between the children in the target group and the comparison group. The children in the target group had significantly lower mean scores on inhibit, shifting, emotional control, working memory, and plan/organize, comparing to the children in the comparison group. It indicated that the children in the target group were more likely to conduct appropriate behaviors related to EF skills, comparing to the children in comparison group.



*** $p < .001$

Figure 2 The comparison between the children in the target group and comparison group on the executive function subscales mean scores

The findings of the current research were consistent with previous research conducted by Thanasetkorn (2009b) and Thanasetkorn et al. (2015). Previous research showed the increase of the positive parenting practices and the decrease of the negative parenting practices after The 101s parent training. The findings from the current study showed that the parents who had participated in The 101s training program still used the positive parental practices more often and use negative parental practices less often than did the parents in the comparison group. The result indicated that the positive parenting practices could be maintained after receiving the training for 3 years. It could be possibly explained that since the parents in the 101 training group had practiced the 101s techniques for 3 years, they became familiar with the 101

techniques and use the techniques regularly to discipline their children. It also could be possibly explained that the trained parents used the 101s techniques instead of negative discipline because they were aware of the impact of negative practice on children behavior problems. The trained parents witnessed the changes in behavioral development as they observed their children's behaviors by rating the BRIEF so that they maintained using the 101s techniques to discipline their children. In addition, the 101s techniques could be the tools that helped the parents to control their emotions; therefore, they were able to discipline their children without punishment and violence.

Moreover, the findings from this research were consistent with previous research conducted by Thanasetkorn et al. (2015). Previous research showed that The 101s training program had a positive impact on EF skills in children whose parents participated in The 101s training program (Thanasetkorn et al., 2015). The current research also showed that the children's EF skills in the target group were maintained when they moved to first grade. It could possibly be explained that the 101s positive discipline techniques had provided the children with emotional support environment in which the children were able to practice their emotional control and self-regulations. As a result, they were able to control their emotions and conduct expected behaviors. Furthermore, it also could be explained, according to Rhoades et al. (2011), that the 101s positive discipline techniques provided the children with clear expected directions but still warm and respect communications. Thus, the children were encouraged to cooperate to their parents and practice expected behaviors related to EF skills. As they had practiced their EF skills, their EF skills were maintained when they move to first grade.

Limitations and suggestions for future study

The limitation of this research was a short period of time. The suggestion for future study were the replication of research method with qualitative research design. The parent interview would provide further information in more deep details regarding the processes they acquired the 101s positive discipline techniques and the motivation for changing their behaviors. The results would benefit the researchers who are interested to develop a training program and also benefit the caregivers who are interested in an alternative way to nurture their children.

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This research could not have been completed without the dedication of the National Institute for Child and Family Development. I would like to express the deepest appreciation to my lovely advisors Dr. Panadda Thanasetkorn, for always be the great supporter. Moreover, I would like to thank to Dr. Piyavalee Thanasetkorn who trained and followed up the parents with her heart. Last but not least, I also would like to thank the parents, teachers and children for their kindly participating in the research.

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The Relativizer That: A Corpus-Based Interlanguage Study

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Abstract

The present study explored the use of the relative clause marker *that* in the interlanguage of Thai EFL students, drawing the data from Thai Learner English Corpus (TLEC). As can be seen by the data from a subcorpus of TLEC consisting of intermediate learners' English, different types of grammatical errors on English relative clauses (ERCs) have been discovered. Of all these syntactic deviations, what appears to be the most serious problem for Thai EFL learners relates to the use of resumptive pronouns, regarded as unacceptable in standard written English. Moreover, the findings also accord with the central claim of Keenan and Comrie (1977)'s the Noun Phrase Accessibility Hierarchy in that the easiest ERC types are apparently the subject RC and the direct-object RC respectively, with the least accessible one being the genitive RC. Pedagogically speaking, the subject relative, i.e. the most unmarked type, should be introduced first to students, and the others with further degrees of difficulty instructed later.

Keywords: English relative clause, language corpus, Thai EFL learner, error, The NPAH

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Introduction

Research studies in second language learning of English relative clauses (ERCs) have so far shown that the Noun Phrase Accessibility Hierarchy (NPAH) plays a key role in accounting for English learners' development of L2 ERC knowledge (e.g. Amornwongpeeti & Pongpairroj, 2014; Chang, 2010; Chou, 2006; Izumi, 2003; Rattanasak, 2014). However, many studies on how Thai EFL learners acquire ERCs in relation to the NPAH seem to concentrate more on the ERCs introduced by wh-relative markers, e.g. who, whom, which, whose, etc. (Phoocharoensil, 2012, 2014), whereas there exist fewer studies addressing Thai students' acquisition of relative adverbs, e.g. where, when, and why (Phoocharoensil, 2012). Very few studies to date place an emphasis on the relativizer that; many generally investigated that along with wh-relativizers (e.g. Phoocharoensil, 2009).

It is also evident that a good number of studies in EFL contexts elicited data from a variety of instruments, e.g. a sentence combination task (e.g. Doughty, 1991; Izumi, 2003; Phoocharoensil, 2012; Rattanasak, 2014), a sentence interpretation task (e.g. Amornwongpeeti & Pongpairroj, 2014), a grammaticality judgment task (e.g. Amornwongpeeti & Pongpairroj, 2014; Doughty, 1991; Izumi, 2003), a translation task (e.g. Phoocharoensil, 2009; Rattanasak, 2014), and an essay writing task (e.g. Chang, 2004; Phoocharoensil, 2009).

The current study was therefore aimed at an investigation of the relative marker that appearing in Thai EFL learners' interlanguage, with the linguistic data gathered from a learner corpus, i.e. Thai Learner English Corpus (TLEC), which is representative of Thai students' genuine English competence, rather than artificially elicited data given by other aforementioned means.

Review of Literature

The Relativizer THAT

Biber, Johansson, Leech, Conrad, and Finegan (1999) have presented some interesting corpus-informed facts regarding the relativizer that. That is, this relative marker is very prevalent throughout spoken and written registers, e.g. in conversation, news, academic prose, and fiction. That this relative word occurs in a variety of registers is probably ascribed to its ability to occur in different grammatical and meaning contexts. That, to be more precise, is sometimes used in place of who, whom, and which. For example, similar to who, that in (1), in a subject RC position, refers to the human head people, and that in (2), like who and whom, functions as the direct object of the RC, referring to the human head the people. The use of that is preferable in informal spoken English to reduce the formality expressed by whom and possibly to avoid choosing between who and whom (Biber et al., 1999: 615; Carter, McCarthy, Mark & O'Keeffe, 2011).

(1) They're the people that want to buy our house.

(Carter et al., 2011: 451)

(2) They're the people that she met at Jon's party.

(adapted from Carter et al., 2011: 451)

That, in addition, also bears a resemblance to which in that both can occur in the same grammatical function with animate or inanimate non-human heads (Biber et al., 1999). As in (3), that, which refers to the animate head money, is in the RC-subject position, while that in (4) refers to the inanimate non-human head one lesson and appears in the RC-object position.

(3) Don't take money that doesn't belong to you.
(Carter et al., 2011: 459)

(4) He finally remembers one lesson that his mum had taught him early.
(Carter et al., 2011: 459)

Apart from occurring in a noun position, that as a relative marker sometimes functions as a relative adverb, i.e., where, when, and why. For instance, that denotes a place and time in (5) and (6) respectively, while it refers to the reason in (7).

(5) That would be the very last place that Marion and I would want to go [to].
(Biber et al., 1999: 625)

(6) The day that the wall was opened.
(Biber et al., 1999: 625)

(7) The reason that he was not better known.
(Biber et al., 1999: 626)

It is worth noticing that the relativizer that is used in a limited fashion since this relative word is prohibited in non-restrictive RCs (NRCs), the preferred choice being a wh-relativizer (Carter et al., 2011; Loock, 2007), as illustrated in (8), where that leads to a grammatically incorrect structure in English, whilst a wh-relativizer like who in (9) is considered appropriate in such a context.

(8) *The plan, that we discussed yesterday, will be adopted.
(Cowan, 2008: 438)

(9) The students, who had to take final exams today, are tired.
(Cowan, 2008: 437)

The Noun Phrase Accessibility Hierarchy and ERC Acquisition

Keenan and Comrie (1977), through investigation into RC accessibility in 50 different languages, demonstrated that there exist six universal RC types; nevertheless, not all types are present in all languages. For example, English, among very few languages that comprise up to six RC types, is richer in RC types than Thai, which has only three types of RCs, namely SU, DO, and IO (Phoocharoensil, 2009). This groundbreaking language universal is known as the Noun Phrase Accessibility Hierarchy (NPAH), and concentrates on the degree of difficulty involved in acquiring each RC type. As indicated in the NPAH, i.e. (10), the subject relative (SU) is claimed to be the least problematic in first language (L1) acquisition due to its lowest degree of markedness. In contrast, the object-of-comparison relative (OCOMP), on the top of

the hierarchy, theoretically is the most difficult for RC acquisition since, as postulated by Keenan and Comrie, this RC type is the most marked.

(10)

- a. That's the man [who ran away]. (SU)
- b. That's the man [whom I saw yesterday]. (DO)
- c. That's the man [to whom I gave the letter]. (IO)
- d. That's the man [whom I was talking about]. (OBL or OPREP)
- e. That's the man [whose sister I know]. (GEN)
- f. That's the man [whom I am taller than]. (OCOMP)

(adapted from Keenan & Comrie, 1977)

Keenan and Comrie (1977) claimed that that if there are relative clauses in one language, SU is the most basic RC type. Simply put, it is posited that if a language permits relativization on RC type X, other existing less marked types in the NPAH are anticipated. For example, Thai allows IO relative clauses, and this implies the other two less marked types, i.e., DO and SU (Phoocharoensil, 2009).

Despite the fact that the NPAH was originally meant for L1 RC acquisition, there have been plenty of studies proving that the NPAH is applicable to L2 RC acquisition as well.

Chang (2010), for instance, was partially in line with the NPAH since the RC data from eight graduate students' research proposals exhibited SU as the most common RC type (78%), followed by OPREP (14%), DO (7%), and GEN (1%) in that order. It is also noticeable that OPREP RCs were used with higher frequency than DO RCs, which contradicts the prediction of the NPAH. The study also examined the two types of RCs according to restrictiveness. More specifically, restrictive RCs outnumbered non-restrictive counterparts. Moreover, the learners were explicitly confronted with distinguishing between the two types of RCs. In other words, they showed little awareness of syntactic differences between the two kinds of RCs.

In order to scrutinize Thai EFL learners' acquisition of English non-restrictive RCs (NRCs), Rattanasak (2014) collected data of NRCs using a sentence combination task and a translation task. In accordance with the NPAH, the data from the sentence combination task were consistent with the NPAH in that the learners' NRC acquisition followed the order of difficulty in the NPAH, i.e. $SU > DO > IO > OPREP > GEN$. Still, the RCs elicited by the translation task, showed that Thai EFL students' NRC learning was, to some extent, in support of the NPAH prediction, with the exception of GEN, which turned out to be less problematic than IO and OPREP. Rattanasak also reported on the learners' avoidance strategy. In particular, marked NRC types were avoided because the learners were found to impart the same message with more basic types of NRCs.

According to Amornwongpeeti and Pongpairroj (2014), there was a relationship between NRCs and the NPAH. They found that intermediate and advanced undergraduate students speaking L1 Thai, having done a sentence interpretation task and a grammaticality judgment task, by and large acquired NRC types, as well as restrictive RCs, in the order which the NPAH predicts. The NPAH thus accounts for

NRC acquisition as well. As can be seen in the results, NRCs posed more problems for Thai learners than did RRCs.

Essentially, Thai EFL students also produce resumptive pronouns, i.e., a pronoun copy that is redundant with the relative pronoun or relative adverb, such as the subject pronoun *they*, as in *I've learned that I shouldn't do things that they hurt them., and this is not acceptable in standard English. Phoocharoensil (2011), in line with Phoocharoensil (2009) and Phoocharoensil and Simargool (2010), discovered resumptive pronouns in Thai learners' interlanguage ERCs. According to Phoocharoensil (2011), resumptive pronouns were found in many RC types in high and low proficiency learners' ERCs. To be more specific, low-proficiency students produced more pronoun copies in writing than did their high-proficiency counterparts. It was posited that the higher the level of proficiency, the less the use of pronoun retention since learners having more L2 English exposure are expected to be more aware of ungrammaticality caused by resumptive pronouns, thereby avoiding inappropriately retaining pronouns in ERCs.

According to Braid (1999), resumptive pronouns are viewed as unmarked features across languages, which means there exist more languages in which pronoun retention is a relativization strategy. With respect to markedness and RCs, resumptive pronouns are more likely to occur in interlanguage than marked counterparts, i.e., overt relative markers.

Data Collection Technique in the Present Study

In this study, data were gathered from a subcorpus of Thai Learner English Corpus (TLEC), i.e. the intermediate-learner corpus, compiled by Aroonmanakun, (2009). The corpus data represent written English of university first-year students from two government universities. This subcorpus was chosen because it was supposed to be a clear reflection of authentic data of ERCs used by Thai EFL learners in general, which should lead to some convincing generalizations as to the use of that as a relative marker.

As for ERC selection, the search was aimed at 500 tokens of that from the intermediate-learner corpus. Only the relative marker that was counted, that with other functions, e.g. as a demonstrative, a demonstrative pronoun, or a noun-clause marker, being disregarded. Next, the tokens of that were categorized into two major types according to grammatical functions, i.e. relative pronouns and relative adverbs (Crystal, 2004). Under relative pronouns are the four RC types in the NPAH (Keenan & Comrie, 1977), i.e. SU, DO, OPREP, and GEN. Regarding that as a relative adverb, the focus was on the three main functions, i.e., that denoting a place, a time, and a reason. Furthermore, an error analysis was performed to identify causes of Thai learners' deviant use of ERCs (Ellis, 2008).

Major Findings

The Relative Pronoun That

Overall, 83.87 % of the ERCs represent that used as a relative pronoun. The ERC data confirmed the NPAH in that what seemed the most accessible or easiest to master for

Thai EFL learners with intermediate proficiency was the SU RC. The more marked RC positions in the NPAH, namely DO, OPREP, and GEN, caused more learning problems. The learners' ERCs comprise different kinds of errors, e.g. the resumptive pronoun, the null-prep construction in the OPREP, and the incorrect relative-word choice in the GEN. The order of difficulty of these ERC types is provided below, where > means 'more accessible or easier than'.

SU > DO > OPREP > GEN

The findings of the order suggested by the present study, which concentrated on only the relativizer that, lent support to Phoocharoensil (2009), exploring ERCs introduced by wh-relativizers, i.e., who, whom, which, whose, and the relative marker that. The main results concerning the order of RC-type difficulty corroborate the NPAH claim in that more marked RC positions are more difficult for RC acquisition, which is consistent with previous studies verifying the NPAH claim (e.g. Amornwongpeeti & Pongpairoj, 2014; Chang, 2010; Izumi, 2003; Pavesi, 1986; Phoocharoensil, 2009; Rattanasak, 2014).

The Relative Adverb That

Only 16.13% of that was employed as a relative adverb. That is, that was used to denote time (11.83 %) the most frequently, followed by place (3.22 %) and reason (1.08%) respectively.

(11) All the time that I have been close to them I think that is the happiest time.

(12) ...around the dormitory to check the place that we had just left whether there were any of my things there.

(13) ...this thing maybe was a reason that she bring me to this school.

That, as indicated in the data, was used in place of when, as in (11), of where, as in (12), and of why, as in (13). It is also worth noting that a Chi-square analysis revealed a statistically significant relationship between Thai EFL intermediate learners' use of that referring to time and their use of that referring to a place, $\chi^2 = 9.143$, $p = 0.002$. In a similar vein, there was a statistically significant difference between that referring to a temporal head and that describing the head reason, $\chi^2 = 16.667$, $p = 0.000$. However, the relationship between the locative relativizer that and that referring to a reason was shown to be statistically insignificant, $\chi^2 = 2.000$, $p = 0.157$.

Learners' Errors on ERCs

Thai EFL learners extensively applied the pronoun-retention strategy. In other words, they produced resumptive pronouns, which are considered ungrammatical in standard English. As can be seen in the data, resumptive pronouns occurred more in the DO RC rather than the SU one, which is less marked. This clearly supports the Resumptive Pronoun Hierarchy (Keenan & Comrie, 1977), which postulates that pronoun retention often arises in marked RC types. Why pronoun retention was absent in the OPREP and the GEN, which are both more marked than the DO, was

probably due to the limited number of these two marked RC types. Examples of resumptive pronouns are given in (14) and (15) below.

(14) Mary is such a good cat that even the dogs around house like her.

(15) ...it is friendship that I keep it in my mind forever.

In (14), the resumptive pronoun *her* is co-referential with the noun phrase *a good cat*, as well as the relative marker *that*. The resumptive pronoun *it* in (15), similarly, is redundant with the relative word *that*, both of which refer to the noun *friendship*.

As regards the reasons why Thai EFL learners use resumptive pronouns, it is interesting to notice that the learners' native tongue does not allow this kind of pronoun copy, nor does L2 English. Consequently, the presence of resumptive pronouns in the Thai learners' interlanguage ERCs should not be attributed to first language transfer. Taking Braidi (1999)'s claim into consideration, we will understand the fact that resumptive pronouns are common in RCs of most languages around the world, and are thus considered an unmarked feature. No matter whether resumptive pronouns are present in learners' L1 or not, they are inclined to employ pronoun retention in L2 RC learning. Put differently, resumptive pronouns exist in interlanguage RCs irrespective of L1 backgrounds, as confirmed by past studies (e.g. Pavesi, 1986; Phoocharoensil, 2009, 2011, 2012 2014; Rattanasak, 2014).

Aside from pronoun retention, the OPREP RC is also what Thai learners are confused over. The key problem concerns the syntactically incomplete structure of RC where a preposition is missing.

(16) but there is just one place that I am very impressed (with) and still want to go back again.

(17) first occupation that I thinks (of) is flight attendant.

The error of the OPREP RC in (16) arises as a consequence of an absence of the preposition *with*. Likewise, the RC in (17) also subcategorizes for the preposition *of* to form a correct preposition stranding construction. These two null-prep structures are examples of interlingual errors, i.e. errors that are caused by learners' mother tongue. Thai EFL learners are perhaps influenced by a lack of OPREP RCs in Thai (Phoocharoensil, 2009). This null-prep construction is very prevalent in intermediate EFL learners' RCs (Sadighi, Parhizgar & Saadat, 2004). As learners' L2 proficiency rises, the occurrences of this interim structure will decline (Phoocharoensil, 2012; Sadighi et.al, 2004). As Odlin (2003) remarked, learners' L2 grammatical constructions, from time to time, exhibit an absence of indispensable prepositions because of native language influence.

Conclusion

The intermediate Thai EFL learners' writing from TLEC has revealed that the relative marker *that* appears with much higher frequency as a relative pronoun (83.87%) than that occurring as a relative adverb (13.13%). The findings, in addition, largely confirm the NPAH as the SU RC was found to be used with the highest degree of

accuracy, and is thus considered the easiest. The DO RC apparently poses fewer problems for Thai learners than the OPREP type. The GEN relative, finally, is viewed as the least accessible. The difficulty order of these RC types, as shown in the corpus data, gives strong support to the principal claim of the NPAH.

The error analysis has shed light on the challenges faced by Thai EFL students in relation to ERC learning. One of the most obvious errors lies in pronoun retention. Resumptive pronouns are often supplied in L2 ERCs, regardless of learners' L1 backgrounds, probably due to their universality and lower level of markedness. Another common deviation found in the corpus is the null-prep construction, where an obligatory preposition is omitted in the OPREP RC.

As it is evident in the research findings that the SU RC is the most accessible type in English, as in many other languages, EFL teachers in Thailand should (re)consider presenting this RC position prior to the other types since students are more likely to acquire this most basic one and become ready for being familiarized with other more marked or advanced RC types. Additionally, due to the fact that resumptive pronouns and null-prep structures prevail in Thai learners' interlanguage ERCs, it is advisable that the prepared ERC lessons, as well as exercises, highlight these problems so as to discourage students from making these grammatically unacceptable constructions.

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Expedition Theory: Bridging Teaching and Learning for Aesthetic Development

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Abstract

This paper is gleaned from years of learning through various styles and limited experience as a design educator. A myth was broken in an effort to 'educate design students'. 'Teaching' and 'Learning' are not equal experiences as both are driven by entirely different motivations. In spite of a teacher's good intentions to inspire students to learn, a chasm lies unattended. Plato's Allegory of the Cave, illustrates the pains of learning first hand versus mere teaching or instructing. Within formal conventions of curriculum, semester, contact hours, teaching and learning for employability etc, Teaching is governed by fixed time, lesson plans and learning outcomes. Push and Pull strategies tend to be used to 'enforce learning'. The paper, however questions this approach with an intention to relook at Teaching and Learning for this day and age. Why not shift focus away from Teaching towards Learning? Why not go beyond instruction or sharing of past accumulated knowledge? What if learning could become a joint expedition opening out learners to new and present knowledge with or without the teacher? What is the essence of aesthetics required to be learned? Must aesthetics be taught as a subject with a heavy theoretical foundation? What could change if aesthetics became an act, practice and habit of simple observation, appreciation, and creation in response to the former. Finally, can expedition theory be used to nurture aesthetics as an essential trait for growth and development? The theory also explores an evolved form of learning, that is 'Learning by Teaching'.

Keywords: Teaching, Learning, Aesthetic development, Expedition Theory

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Introduction

And the year began and ended in a flash,
A flurry of emotions rolling and tumbling past.
Like a paper boat that started to sail.
In the vast ocean with surging tides of myriad waves.
Never thought it would find a shore,
Never thought it could see places.
Never thought it could touch souls,
And be touched and be blessed and blessed,
And grateful to be still asail.
Is it time to rest? Who knows?
Where to this voyage might lead next?

Conventionally, there is an explicit distinction between a teacher and a learner. But, profundity of education can blur teaching and learning, especially when a new teacher is in question. As a young design educator, my first year of teaching, culminated into a sublime experience that could only find expression in poetry. This journey where intellect and emotion went hand in hand was not only aesthetically impressive but went beyond being merely personal. My unfamiliarity with 'formal teaching', put me at par with my learners, I was learning to 'teach'. Hence to me, this endeavor was like any other learning experience. In due course, my learning seemed to compound in pace and scale, but not without overcoming a fair share of challenges.

Challenges of a Newcomer

.... Because 'to teach' was no child's play!
Or so one thought. May be it was.
Oh No! Not that trivial or that small.
But truth there was something in there,
Either in the child or the play.

As a beginner 'teacher', my journey was no less than a heady roller coaster ride with whirling highs and staggering lows. I would turn towards experienced colleagues for guidance and be surprised to hear them share similar woes. Firstly, meeting predetermined expectations of the formal system that worked along certified standards, pulled apart my targets from that of my students. Attendance, Submissions, Marks and Feedback seemed to maneuver learning to be an end rather than a lifelong process.

Secondly, reconciliation of a significant gap between my reality and that of the 17-21 something students. Could this be generation gap? Hard to believe, but indeed there was a disconnect or just plain difference in the methods, techniques and motivations to learn for me and my students. Striking and sustaining the equation to keep students inspired all along the learning process, was no easy.

Thirdly, the early realization of an ironic lacuna in design 'schools' that overlook 'deschooling' (Illich, 1971), especially when most of their students come from conventional K-12 school set-ups, be it urban, semi-urban or rural. Rewiring them to appreciate, imbibe and embrace a collaborative, creative and aesthetic outlook is

essential but time consuming in early stage learning. Inability to see the big picture, was a constant challenge, particularly due to compartmental learning (classes, cohorts, subjects, modules etc.). Adding to that is the system that lauds and rewards individual excellence rather than that of the group.

Fourthly, limited time always presents the dilemma of quantity versus quality of content. Where is the time or opportunity for early stage design students to sense purpose in the society they live in and feel responsible towards their own learning? Walking along this tumultuous path, my only motto was to remember that the learner is at the heart of the learning process. I also chose to relook at my own experience as a learner.

Vision and Purpose

This paper is a reflection of my lifelong learning and, brief but exciting, teaching-cum-learning practice. It culls some of my insights about formal design education and the need to bridge gaps in teaching and learning. If learning takes supremacy as a lifelong mission, then as joint expeditions, barriers between teaching and learning could be erased. This expeditionary approach can be useful to nurture an aesthetic acumen in students, facilitating intrinsic growth for them and their teachers. Teaching has immensely enhanced my learning. Likewise, students too can 'learn by teaching' (Wikipedia, 2014), and empower a society that falsely believes that 'aesthetics is only for artists'. (Owens, 2013), Could they feel valuable as they spread the message of an aesthetic life, playing agents of change for the present and future? This is an opportunity for students, educators, thinkers, lifelong learners and leaders to contribute and relook at education, which is believed to be crucial for a 21st century hyper-linked learning society.

Understanding Teaching and Learning

Before embarking on a voyage a seasoned explorer always prepares well. Similarly, beginning with the context of systematized education for employment¹ guides this journey of understanding the true purpose of teaching and learning (Fig.1). Formal education brings forth many generic imageries (Fig. 2). The general constituents of the experience are: a teacher/ instructor, student/s, a learning space, tools for teaching and learning, subject or topic to learn, lesson plan/ instructions, work that tests understanding and application of the former and finally a feedback system to assess and progress or graduate.



Fig.1. Education for Employment?; Fig.2. Formal Education Word Cloud

¹ <https://www.facebook.com/thespirtscience/> photos; accessed: 08.11.2014

Formal education also depends on administration, infrastructure and resource management to enable its smooth functioning. They are critical to the learning process such as in the design of the learning space, teacher-student ratio, time tables/ academic calendars, incentives/ opportunities for teachers' development, monitoring systems for teachers, students and parents etc. These issues are relevant but beyond the scope of this paper.

Evolving Teacher-Student DNA's

Formal education rests on its two key stakeholders-students and teachers. Fig. 3. traces the evolution of the two groups with changing contexts. Well past into the Information Technology Age, we face many redundancies in the formal education system including 'the teacher as an instructor'. The purpose of learning is changing from employability to the pursuit of lifelong fulfillment, from survivalist pragmatism to existentialist idealism. 'Learning to be' instead of 'learning to become' (Faure, et. al., 1972). Does this endanger formalized institutional learning? What is missing?

When ADULTS Taught In The WILD	When TEACHERS Taught In HERMITAGES	When TEACHERS Taught In INSTITUTIONS	When EVERYONE & EVERYTHING Is Teaching & Learning
GAURDIANS/ PARENTS. OLDER/ EXPERIENCED. SOLE COMMUNITY KNOWLEDGE-GIVERS TAUGHT THROUGH LIVE HUNTING SESSIONS	GUARDIAN-LIKE, WISER/ EXPERIENCED. SOLE COMMUNITY'S SPECIALISED KNOWLEDGE GIVER. PREACHED, CONVERSED, SET TESTS. COMMANDED FEES IN RETURN.	STRANGER NOT GUARDIAN, YOUNG + OLD; VARIED EXPERIENCE. ONE IN MANY SPECIALISED KNOWLEDGE GIVER THROUGH LESSONS, LECTURES, TEXTBOOKS, ASSIGNMENTS, EXAMS ETC.	STRANGER OR GUARDIAN, LIVING OR NOT, NO AGE OR EXPERIENCE LIMIT; GENERIC + MULTI SPECIALISED, MULTIPLE SOURCES, CHANNELS, METHODS OF KNOWLEDGE GIVING.
EAGER, ONLY OPTION TO LEARN FOR SURVIVAL. HIGH FEAR OF FAILURE, LIFE-THREATENING. PHYSICAL TRAINING AND MENTAL CORDINATION OF HIGH PRIORITY.	DECLINE IN EAGERNESS. LEARNING FOR STATUS, LESS DANGER PRONE. LARGELY MENTAL TRAINING MORE IMPORTANT THAN PHYSICAL TRAINING. FEAR OF FAILURE NIL/ LOW.	INTEREST NOT IMPORTANT. LEARNING FOR STATUS, IN SAFE ENVIRONMENT. HIGHLY DEPENDENT ON MENTAL SKILLS. HIGH FEAR OF FAILURE AND PENALTY.	SELF INITIATION, EAGERNESS VERY IMPORTANT. PERSONALISED ENVIRONMENT. LEARNING FOR EMPLOYMENT BUT ALSO TO ENJOY. LOW TO MEDIUM FEAR OF FAILURE.
LEARNING APPROACH			
INFORMALSURVIVAL CENTRIC LEARNING. NOT LIESURELY, TIME-BOUND (ADOLESCENCE). LEARNING FROM NATURE, GENERIC KNOWLEDGE.	FORMAL, SURVIVAL + INTELLECT CENTRIC KNOWLEDGE. PARTLY LIESURELY BUT TIME-BOUND (ADOLESCENCE). LEARNING FROM NATURE AND STORIES.	HIGHLY FORMAL, KNOWHOW BASED LEARNING FOR LIVELIHOOD. TIME-BOUND (ADULTHOOD) LEARNING FROM BOOKS/ CLASSES CREDITED BY BOARDS.	FORMAL, INFORMAL + NON-FORMAL. INTELLECT+ KNOWHOW + SKILL BASED. TIME-BOUND IN DURATION BUT FLEXIBLE, NO AGE LIMIT OR NUMBER OF REPETITION.

Fig.3. Teacher-Student DNA's Evolution

Non-Formal Education

Formal education has received much flak from many a thinker, educator and leader for being rigid and non-learner-centric. In India, it was especially condemned for its colonial roots that degenerated the Indian spirit in her citizens. J. Krishnamurthy, The Mother, Sri Aurobindo, Carl Rogers, Kurt Hahn, Ivan Illich, Sir Ken Robinson, Alan Watts etc. have elicited in various instances how modern education impoverished an individual's very soul. Instead it only bred weak citizens and disharmonious nations. Although formal standardized mass education has many drawbacks, it is difficult to adopt the extreme opposite, Informal Learning. It may be the best way we learn but due to its unstructured and unintentional nature much time and resources get mismanaged. Many alternative models and ideologies were conceived based on the constructivist theories by the likes of J. Dewey, J. Piaget, L.Vygotsky and M.

Montessori. They attempted to blend intentional, time-bound and infrastructure based formal and the incidental or accidental and flexible, informal learning model. This blended form was termed 'Non-formal' education (Fig.4). Rogers, A., (2005), defined it as: "Any form of learning conducted outside of a formal organization."

It is based on the idea of knowledge construction by way of observation, discovery, first hand or immediate experience, peer interaction, collaboration etc. It is also the most common approach used in adult education. Carl Rogers, a proponent of student-centric independent learning, extensively published on how formal systems must accommodate the learner's needs. In his book, *Freedom to Learn*, he identified some essential traits for a learner, (General Teaching Council for England, 2008): "The only person who is educated is the person who has learned how to learn; the person who has learned how to adapt and change".

Education is about learning to be informed, independent, creative, flexible, but what must education really address? Is it only limited to training work forces and empowering economies?

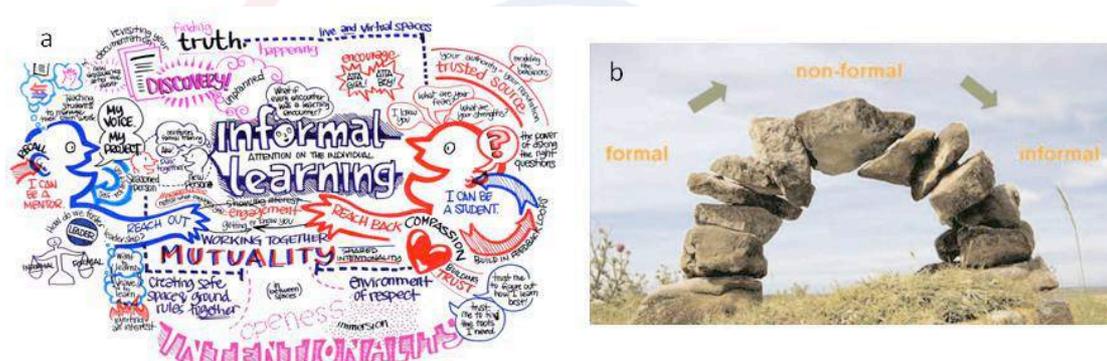


Fig.4. Non-Formal Learning: a) (Agerback, 2012), Intentional Informal Learning; b) (Shephard, 2006), Bridging Formal and Informal Learning

Learning Beyond Knowledge

Plato's Republic has been an inspiration to many educators. The Allegory of Cave shown in Fig.4a², illustrates why the imprisoned people (learners) must take initiative to leave their protective caves (incomplete knowledge and ignorance), to independently explore (sun lit exit) the outside world and compare realities (shadows vs. real trees) so they may return with the truth or wisdom (sun). Plato knew to live well we need strong harmonious nations, where every citizen learns and lives with humanitarian values. According to him 'character building', is education's most important function (Stetson, 1941). Sound judgement apart, confidence, camaraderie, leadership, trust, sensitivity, empathy, compassion, love, coping with negativity, anxiety, stress, valuing health etc. are mark of an impressive, desirable and strong character to live a meaningful life (Fig.6). Formal education could offer students these

² Edited by Author, <http://blackflagtheology.com/tag/allegory-of-the-cave>, accessed: 28.12.2014

personality traits much earlier in their lives. Education in its foremost stage must be an understanding of 'self' (mind, body and heart). But one must also extend this learning to 'others' in our immediate surroundings and gradually outwards to the larger 'environment' (planet/ nature) as shown in Fig. 5(b, c, d, e).



Fig.5a. Allegory of Cave; Fig. 4.b,c,d,e. Self, Other & Environment; 2nd Year student's blog assignment on art and film interpretation; 1st Year design: Dialogues for stationery holder for fellow student; 2nd Year Communication Theory: Journal from visit to National Science Centre, Delhi.

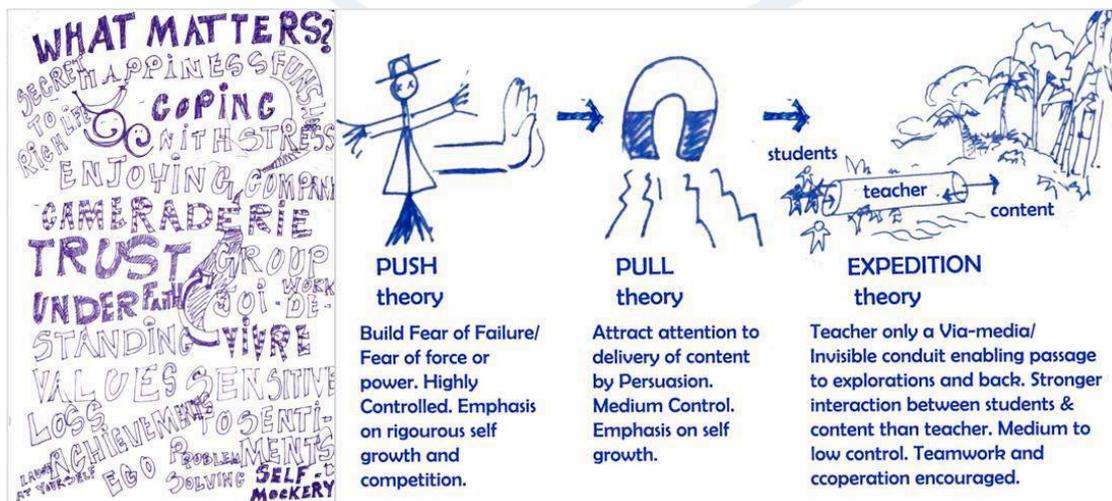


Fig.6. What to learn? Fig. 7. Teaching Strategies: Push, Pull, Expedition theories.

Dr. Kurt Hahn, founder of the Outward Bound Trust, was inspired by the saying, 'Plus est en vous', meaning there is more in you than you think. He believed in tapping the potential of youth who were wasting away under the influence of social evils and getting disinterested with conventional schooling. In a public address, he shared his vision to have self motivated young learners. For the first time he compared learning to expeditions, inspired by marine rescue missions. Dr., Hahn, K., (1960), said:

"There are three ways of trying to win the young. There is persuasion, there is compulsion and there is attraction...“You are needed.” That appeal hardly ever fails...young of today respond better to the service. If learning is viewed as an expedition then it promises much more than the originally set goals."

His words very aptly capture the teacher-instructor's strategies of Push and Pull (See Fig.7.), and how it can move towards Expedition theory discussed in the following section.

Expedition Theory

An expedition is a journey taken to fulfill a deep sense of inquiry and curiosity. It could be a trip to the wilderness or a ride to the outer space or even a little experiment in your garage or backyard. Every expedition is directed by a guide/ coach/ interpreter along with an expedition crew. There are no tourists or passengers here, but only avid explorers who perform remarkable feats of discovery with immaculate teamwork. In the same sense, learning involves exploring the unknown. When a group of curious learners collaboratively participate in unique experiences, where serendipity can guide their discoveries and interpretations, we have a 'Learning Expedition'!



Fig.8. Expedition: Curiosity & Explorations in Teams

Expeditionary Learning

Dr., Hahn wanted young people to be driven by courage, compassion and love in their learning expeditions. When he started the school, Outward Bound, due importance was given to fitness training, expeditions, projects, and rescue services to ensure the young can test and build their character. He once mentioned in an address to the Outward Bound Trust, (Dr., Hahn,1960):

“Experience has taught us that expeditions can greatly contribute towards building strength of character...it is necessary for a youth to experience events which “reveal the inner worth of the man: the edge of his temper; the fibre of his stuff; the

quality of his resistance, the secret truth of his pretences, not only to himself but to others.”

Born out of Kurt Hahn's Outward Bound's values and beliefs, is a school reformation model for middle and high schools known as Expeditionary Learning Outward Bound (ELOB). (Thornton Creek, Seattle Public School, 2010). ELOB is based on 10 design principles namely:

- i) the primacy of self discovery; ii) the having of wonderful ideas; iii) the responsibility for learning; iv) empathy and caring; v) success and failure; vi) collaboration and competition; vii) diversity and inclusion; viii) the natural world; ix) solitude and reflection; x) service and compassion.

ELOB ensures the expedition team of teachers and students learn through interdisciplinary project-based experiences created by the teachers. Teachers facilitate by challenging students to think deeply, question, research and evaluate their own work as well as their peers'. Students are also encouraged to record their findings and reflections on the experience. ELOB acknowledges learning as a process and allows time for gradual improvements in drafts or stages, till the learners feel a sense of accomplishment. The Thornton Creek public school in Seattle, USA, successfully tried this model in their visual and performing arts program (Thornton Creek, Seattle Public School, 2010).

Austin's Butterfly is an art project for a 1st grader named Austin (Expeditionary Learning Schools, 2014). Austin's challenge is to recreate an as realistic drawing of a butterfly based on a reference photograph. Fig. 9. shows how the young boy was able to improve his work vastly from the very first doodle. This activity helped Austin and his peers to understand the value of astute observation, building the right vocabulary and honest opinions and critiques in order to produce high quality work. ELOB as an experience is flexible, disrupting the concept of learning in cohorts or batches based on age groups. Expeditionary learning is a unique way to bring students together for a common cause and collaboratively synthesize solutions and prototypes.

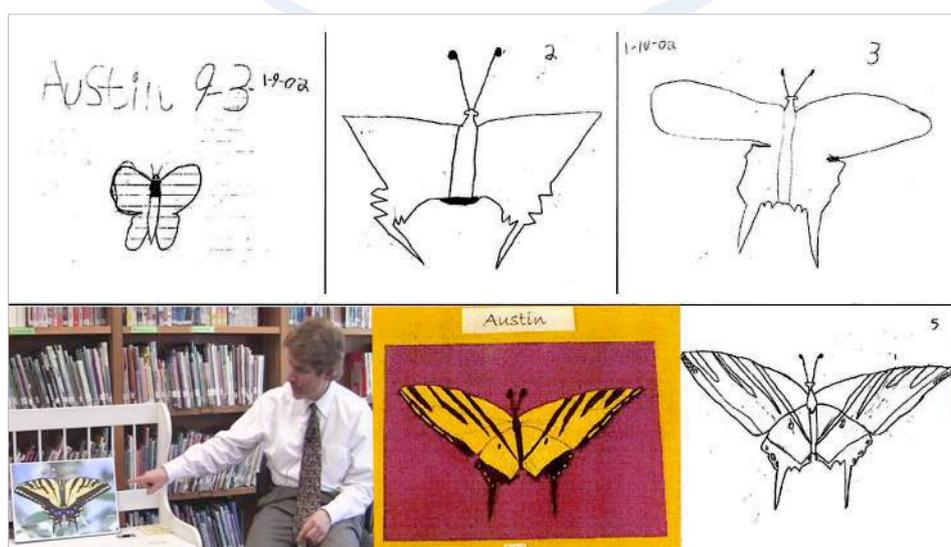


Fig.9. Austin's Butterfly Project

Reflecting on Key Learning for Teaching

Kindergarten: Picking snails from the classroom backyard, 1st to 5th Grade: Learning Carnatic classical music with my sister, 7th Grade: Making a simple recoil model with my father, 8th Grade: Sound and light show during a trip to Purana Quila (New Delhi), High School: Making inorganic dye with fellow student in the lab, 1st Year Architecture: Measured drawing group work during trip to Sikandra (Uttar Pradesh), 1st employment's outbound induction training: Camping at Mukteshwar (Uttarakhand), and interacting with a local family, Master of Design batch trip to Kumbakonam (Tamil Nadu), Conducting workshops in school and college. (Fig.10, 11). Looking back, these were some episodes etched in my memory for life. These experiences were a form of Non-formal learning. Most of these learning sessions were situated outside the conventional classroom and often undertaken in groups.

These experiences were both fun and challenging, for they affected my entire 'self' as I actively engaged with 'others' in a variety of 'environments'. My peers and I had to explore, observe, question, be curious, brave, open-minded, persevere, share and thus jointly build our knowledge. Our explorations and the situations we encountered did all the teaching for us. In retrospect these experiences were little expeditions facilitated by a guide, mentor, coach or teacher/s. While directing the group of learners these facilitators also collaborated and learned with us. These expeditions had an enormous influence to kindle and awaken an important life skill in me, the aesthetic acumen. This was worth carrying forward as an approach in my own teaching methods.



Fig.10. Examples of Learning from Past Experiences: a) Outbound Training, Mukteshwar, Uttarakhand; b) Trip to Kumbakonam, Tamilnadu & c) 2nd year Architecture water colour class to Dilli Haat, New Delhi



Fig.11. Examples of Teaching: a) 1st year Design: Group environment study of a roadside barber; b) 2nd year Information Theory: Visit to Old Delhi Railway Station & c) 2nd year Architecture Outdoor photography at Connaught Circle

Defining Aesthetics

Aesthetics is a branch of philosophy that deals with the idea of beauty and taste (Munro, 2012). While it extends across our entire sensory perception of the world, in popular understanding it is directly linked to visual arts. Aesthetics is rooted in culture and traditions, as there are treatises, tenets and principles proclaiming what is beautiful and ugly (Natya Shastra, Nava Rasa, Golden/ Divine Proportions etc.). It is also dictated by socio-politico-economic trends and practices. Often many cultures tend to elevate an enjoyable experience with honest beauty to truth and divinity. This sanskrit verse, 'Satyam Shivam Sundaram', tersely translates to goodness or divinity being a manifestation of truth and together they express beauty that elicits a beautiful positive response of bliss, joy and adoration. On the contrary, aesthetics can also be very individualistic, personal and subjective. What appears to be beautiful or pleasurable to one may be distasteful or even disgusting to another, irrespective of cultures and origins. Aesthetics, in a direct way, is a subtle yet simple art of appreciation, of any form of creation that intrinsically touches an individual. It involves close observation and deep reflection of emotional/intellectual perceptions to interpret and critically analyze the object in view.



Fig.12. Aesthetic Canons: a) Indian Folk Dance Drama; b) Changing Standards of Feminine Beauty: From John Berger's Film, Ways of Seeing; c) Golden Ratio³

Aesthetic Acumen

What is an aesthetic acumen? Why do we need it for development? How can this be nurtured? Study of aesthetics can thus enhance one's creative and analytical faculties. Aesthetic acumen lets us acknowledge, embrace and channelize our feelings and thoughts into heartfelt creative expression, either through music, art, film, writing, acting or performance, which further resonates beauty. Thus enabling beautiful and creative conversations. A well developed aesthetic acumen is to identify beauty in every experience.

³ <http://speckyboy.com/2012/06/06/speed-consistency-harmony-creativity-certainty-with-the-golden-grid>, accessed: 08.11.2014



Fig.13. Richard Harsh on Aesthetic Experience: Looking for Beauty in 4 seconds

A former high school art teacher from California, Richard Harsh (Fig. 13), trains students to appreciate beauty and verbally 'capture' an everyday activity as an aesthetic experience, such as pouring cream into a cup of coffee (Teaching Aesthetic Experience, YouTube, 2014). Richard Harsh wanted to sensitize and empower his students who came from disadvantaged socio-economic communities. He believed aesthetics offered them the hope and positivity to choose a better life. In an emotional moment Richard shared what his students felt about his art lessons and what art's true purpose was:

"Thank you for the art history classes...but the thing you taught me the most is how to love myself, that I am a person that's worthwhile and I can do anything in this world if I wanted to...And that's what the gift of art is...to open your eyes not only to the world but to your own potential, which is just infinite."

Aesthetic Development as Learning Expeditions

Aesthetic acumen begins with understanding one self and one's perceptions to the outside world or the object in view. Upon further exploration one uncovers unexpected connections in cultures and ideologies opening up minds to embrace diversity. An aesthetic acumen constantly shifts perspectives from 'Self' to 'Others' to the larger 'Environment', a very important skill set for any human especially an early stage design student. Aesthetic acumen, not only opens our minds but also our hearts to unbiased appreciation, unleashing a sense of wonder in discovering myriad interconnections in nature. The world becomes one harmonious whole, giving birth to empathy and compassion to love and care for all, the way we would for ourselves.

Aesthetic education is imperative to overall development of every individual and thus the collective society. (Pandit, M.P., 2009), In his book, *The National Value of Art*, Sri Aurobindo laments at the loss suffered by the Indian system, for ignoring the aesthetic development of every human. This included: imagination, sensitivity to fine arts like music, perceiving beauty in nature by understanding the intrinsic soul values, harmony etc. This understanding was reflected into my teaching modules such that learning became an expedition for self discovery. The following are exemplars of some of the play/ fun based learning activities I created and participated in with my students and colleagues as a teacher-facilitator in formal design schools.





Fig.14. Funshop: Non-formal creative workshops; Fig 15. Arts project from natureobservation to wood cut prints; Fig 16. a) Multiple interpretations of one idea (Wheel); b) Found typefaces from everyday objects (different languages); c) Music Interpretation in Colour and Black and White/ Grey; Fig 17. Expedition culminating as exhibitions/ film screening and students' reflections

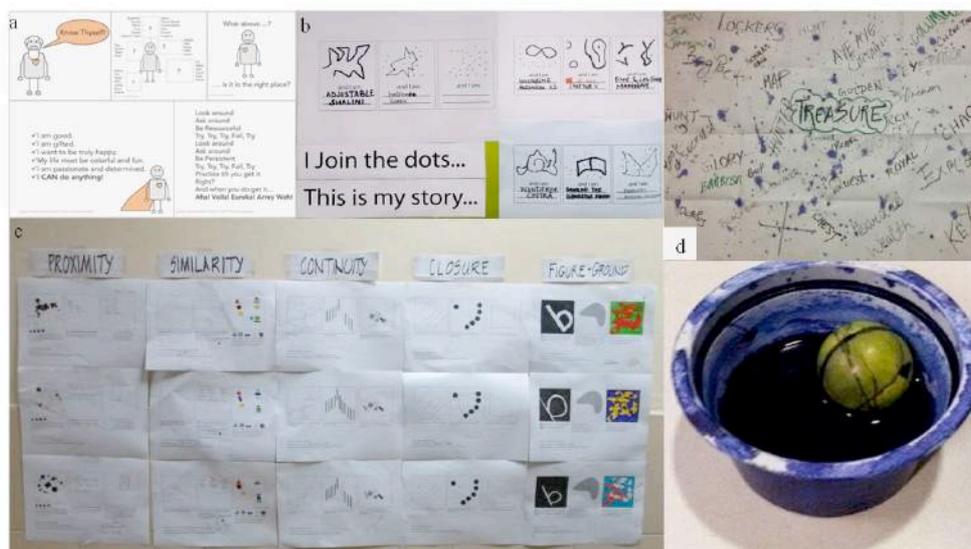


Fig.18a, b, c, d. Cognitive Activities: Know thyself, Interactive Session on Self Awareness and Reflection; Join the dots: Culmination of Module on Storytelling; Learning Gestalt through Visual Puzzles; and Ball-storming: Tangible Brainstorming on 'Treasure', theme for Storytelling Module.

My aim was to build their confidence, know their own self worth and express themselves unabashedly. We would usually displayed the work to appreciate, compare and find similarities. We are easily wired to spot differences, but it takes a close look to find similarities. This works wonders in bonding with complete strangers. I have seen friendships getting built as classmates loved to spend time with like minded learners as they collaborated for projects.

Reflections and feedback from most students, showed that these activities were well received as both a form of relaxation and enjoyable learning of the subject in spite of inherent challenges to excel. Indirect learning was also in knowing about each other. These expeditions were intended to culminate into significant events such as final exhibitions, shows or screening that was opened to everyone in college. This reinforced a sense of accomplishment in students as they reflected on all their initial struggles that made it possible. The learners group also displayed a collective pride for their joint efforts, thus building an implicit bond among peers.

Learning by Teaching

Teaching has been an aesthetic learning experience for me. It not only enhanced my knowledge of the subject but also let me grow by enhancing my character to be more positive and sensitive to emotions. (General Teaching Council for England, 2008), Carl Rogers quoted in his book, Freedom to Learn: "The one who does the talking, does the learning".

I believed that 'Learning-by-Teaching begets Learning'. I was motivated to let my students experience this type of growth as teachers of their own learner's group. Further reading led me to Jean-Pol Martin, a language teacher who established the method of 'Lernen durch Lehren' (Learning by Teaching) wherein students learn by

teaching their peers (Wikipedia, 2014). The Mother's view on teaching is that it is a divine grace bestowed upon an individual as a unique opportunity for self development. She believed the role and character of a teacher was integral to learning. In an essay titled *A Good Teacher*, she has written about the qualities of a good teacher (The Mother, 2009):

"One must be a saint and a hero to be a good teacher. One must be a great yogi...One must have a perfect attitude to be able to exact a perfect attitude from the students."

While Teaching offers many lessons for the teacher in terms of conduct and interpersonal relationships, my concern was to know how it affected true learning. Learning is typically individualistic with a focus on self improvement. On the other hand, Teaching is a process that takes learning beyond 'self' to 'others' in an as explicable way as possible. Thus teaching is a far more social and expansive experience. When students teach they connect better by transcending formal barriers in trends, language and hierarchy, conventionally associated with a teacher. This is where, I discovered a caveat in teaching by learners.



Fig.19 a, b. Learning by Teaching in Outdoor and Classroom Environments: School students peer teaching in a Museum of Arts; 3rd Year Product design students teaching assigned weekly design concepts in Class.

I implemented micro teaching with a smaller batch of students (9 Nos.) (Fig.19 b). There was an inherent risk of casualness, inaccuracy and misrepresentations. Often 21st century learners were prone to limited but popular resources on the internet instead of using the vast reserves of a library. In such a scenario, teachers should appropriately intervene. They could question or guide learners to seriously look for varied and credible sources of information. Learners must be trusted with the responsibility of sharing ethical and accurate information. They must also be encouraged to freely reveal limits in their knowledge. Thus inviting peer learners and teachers to fill in their gaps. This motivates inquiries that can be followed up by students taking the initiative to go deeper into the subject. Learning by teaching can be seen as a more engaging way to learn, as it propagates learning of a subject.

Conclusion

As a hopeful young design educator, I was always a learner at first, but I was consumed in tackling challenges within the formal education system. My initial reaction was only outward looking and filled with disappointment and acrimony. I was impatient with inefficiencies in teaching within the system. I wanted to end

methods that were irrelevant for current times and change the system by weeding out parts that dehumanized learning. But with time, I realized, the change I wanted to see had to start from me and emerged from looking inwards. Indeed, this was an eye-opener, as I discovered the solution was in the change in attitude.

Role of Expeditions

Expeditionary learning played an important role in this change of attitudes. I was able to embrace uncomfortable feelings/situations and uncertainties that led me towards wisdom which I wanted to sow as seeds in the society at large. I noticed, learning expeditions, facilitated both the education of the mind and skills and that of the heart and spirit. Through a variety of challenges whether emotional, intellectual or even spiritual, learners emerged with Aha! moments and became more humble and compassionate. In the end, a sense of accomplishment of goals, developed learners' personalities with more confidence, creativity, team and leadership skills. Learning expedition is a journey that can have lasting impressions for life as learners mature in sensitivities and sensibilities. This is the only first hand route to gaining and retaining wisdom because instructions can only offer forgettable information. Wakefulness and mindfulness along with conscious reflection bring about this change in attitudes.



Fig 20. Expeditionary Learning: Bridging Gaps and Building Relationships

Need Versus Want to Learn

In expeditions, learners willingly participate with a 'want to learn' instead of the compulsion of a 'need to learn'. Learners take active ownership in their quest for knowledge, wisdom, truth and beauty. 'Learning by Teaching' experiences can boost their self-confidence and make them realize their self worth. Through this they might even enlighten a society to believe that *'aesthetics is not only for artists'*. In a technologically wired planet with multiple learning communities, learning expeditions can make students cooperate to harness the power of teams and networks to innovate design solutions for various global issues. Teachers, the Education System and the

Community must support and treat them as mature and responsible young adults. They must trust their learners' abilities to see their own transformation.

Role of Teachers in Expeditionary Learning

The teacher as just an instructor is soon becoming redundant. Teaching ought to shift away from mere systemic compliance to advanced learner-content interaction. The old Push and Pull approach must move towards facilitation, mentoring or coaching. Teachers should open the world of questions to learners. Robert Bainbridge in his essay, *A New Type of Teacher*, aptly quotes (Bainbridge, R., 2009):

"With the teacher's help students must become questing spirits going beyond the boundaries of static comfort and status quo....into larger life of adventurous transmutation....'from Wonder unto Wonder existence opens'."



Fig 21. Expeditionary Learning Cycle

In Learning expeditions, teachers also chart unfamiliar courses to bring out the best in themselves. That is how they can inspire and prepare students to deal with life's events. Teachers should champion this cause in spite of systemic limitations. Expeditions thus truly bridge gaps between the learner and the teacher because, teachers transform into learners, experiencing their own adventures and moments of truth and wisdom. Teachers step down from pedestals to mingle with students. This makes learning far less intimidating. Instead, it is now more collaborative, full of surprises and thus enjoyable.

Teachers around the world, have great power. We can shape just, fair and compassionate nations by nurturing their future citizens as we lead by example. Teaching brings out the best in us to achieve the best in our students. So they can appreciate and learn the value of thinking, feeling and acting with goodness. Robert Bainbridge writes in, *A New Type of Teacher* (Bainbridge, R., 2009): " A teacher affects eternity; he can never tell where his influence stops."



Fig.22. Teacher-Student Bonds Beyond Classroom Learning

To impact students in a powerful and positive way, a teacher must have an 'integral personality' (Jayaswal, S.R., 2009). This involves development of four aspects of self: *Psychic* for understanding one's inner psychological make-up; *Mental* for intellect and rationale to be calm; *Vital*, to balance emotions and maintain a positive attitude; and finally *Physical* to hone the body as a supple and strong instrument for service. When the *Psychic*, *Mental*, *Vital* and *Physical* aspects are well developed four major attributes are born: *Love*, *Knowledge*, *Power* and *Beauty* respectively. These in turn are manifestations of Truth and become an inherent part of the teacher's 'integral personality' inspiring and serving students as a powerful role model.

Aesthetics for Personal and Professional Life



Fig. 23. Vasudhaiva Kutumbakam: World is One Family

Aesthetics must be learned in early years of education first for personal and later for professional growth. But, aesthetics cannot be truly learned from books, rules and laws. Instead it is the first hand study of appreciating and extracting the essence by honestly and deeply looking beyond physical attributes. This demands great practice and devotion, which is why students need a teacher's guidance, to discard biases, celebrate diversity and view the world as one whole family. As a life skill, they can learn to balance emotions by embracing and channelizing them through creative expressions that further creates more truth and beauty. Thus aesthetic acumen develops youth to act as better global citizens.

flexible timelines as opposed to semesters and fixed number of years. Unlike music, dance and sports where failing is inevitable and motivation to excel is an inherent precondition; our education system fails to encourage failures that engender an attitude of excellence instead of just passing. Finally, How would the education system change, if its core was to honour and reward love, empathy, camaraderie, cooperation, sharing, sense of humour, maturity and emotional intelligence? What would happen if the metrics and procedures are realigned towards what matters the most in life?

This brings me back to the change in attitude. Systems are ultimately made up of people, and a change in attitudes of these people can change systems at large. My final insight for future practice is that, we are all together students, who are endlessly learning in one School called Life.



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A Study of Comparatively Low Achievement Students' Bilingualized Dictionary Use and Their English Learning

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Abstract

The aim of this survey study is to investigate bilingualized dictionary use (i.e. Longman Active Study English-Chinese Dictionary in paper form) of comparatively low achievement college students. It focuses on EFL learners' overall dictionary use behavior and their perspectives on this book dictionary as well as the advance guidance of dictionary use offered by their English teachers. Data was collected through questionnaires and analyzed by SPSS 15.0. Findings of the study indicate that lower proficient students in general hold positive perspectives towards the helpfulness and effectiveness of using bilingualized dictionaries in learning English whereas roughly half of the participants have formed the habits of dictionary use out of the classroom after their one-year English education at college. Frequencies of finding out different types of word information might be determined by classroom activities and written assignment. Both L1 and L2 information of head words is viewed as useful resources for the student participants. This article concludes by arguing that low proficiency students need to receive solid training in using L2 information in bilingualized dictionaries to expand their knowledge of English vocabulary. Pedagogical implications and suggestions have been made for the dictionary publisher as well as teachers in the EFL contexts.

Keywords: low-level students, English learning, paper dictionary use

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Introduction

Choosing the most appropriate dictionary for students to accommodate their abilities and needs in the language classroom is a common and recurrent problem to language teachers. When target language input is quite limited in real life, EFL learners rarely have the chance to pick up English or to acquire English vocabulary in natural acquisition environments. Dictionaries might be an invaluable source of and effective reference to English as they can solve learners' problems by providing them with useful linguistic and cultural information. Especially when teachers are unavailable for immediate consultation, English dictionaries can serve as the means to filling this void. For EFL learners, advancing their English proficiency might have become a life-long learning task and should not be merely confined to formal school education at any stage of their language development. When they encounter and want to solve problems related to their use of English, learners need reliable information that they can refer to. Not only can good dictionaries provide learners with English cultural knowledge but also sustain their long-lasting interest in learning the language. Hence, dictionaries can be a useful tool in turning users into independent problem solvers and autonomous language learners.

In the language classroom, if not dealing with the dictionary selection problem, teachers might face some consequences, such as failing to integrate dictionary use in students' learning process and depriving students' chance of further language development. However, leaving students, particularly beginning and lower proficiency learners, to choose dictionaries for themselves might have an adverse effect on their L2 learning too. Many researchers (e.g. Fan & Xiao, 2006; Lou & Li, 2012; Shi & Pan, 2005; Wang, 2007) suggest that English learners need to choose dictionaries in which the contents can accord with their English levels and their needs. Without the awareness of how dictionary use can assist them in learning a language, learners might trap themselves into just getting by whenever they need to consult dictionaries. To such students, English teachers play a role of successful English learners and professional dictionary users. Based on their teaching and learning experience, English teachers can advise students to choose dictionaries as well as compensate students' lack of familiarity with English dictionaries, so as to improve students' dictionary look-up skills through proper training and exercises.

Significant research related to the effectiveness of using dictionaries in boosting learners' L2 vocabulary and reading comprehension has been done in Taiwan. The majority of the research focuses on educators' evaluative perspectives. A limited understanding of actual dictionary users' perspectives needs to be expanded. Therefore, the purpose of the present study is to explore comparatively low English proficiency level students' perceptions toward their use of *Longman Active Study English-Chinese Dictionary* (i.e. LASECD) for one year in their General English courses at Wenzao Ursuline College of Languages (i.e. Wenzao; this college has been upgraded to Wenzao Ursuline University of Languages in 2013). This group of students' overall College Student English Proficiency Level Test (i.e. CSEPT) scores ranged from 120 to 150. In this study, data was collected through questionnaires in order to elicit information concerning these student participants' dictionary use behavior and their overall perceptions of LASECD. The questionnaires consist of 29 items and were administered to 147 students. The findings reveal that around half of the participants perceived that they had formed habits of using LASECD in studying

English. The findings also indicate the types of word knowledge which these students frequently looked up when they used LASECD. In addition, most of the participants held positive perceptions toward LASECD and their use of this dictionary. Please see the research results in more details in the section of Findings and Discussion.

Literature Review

Nowadays many dictionaries are available in a variety of formats: book dictionaries, pocket electronic dictionaries, CD-ROMs, online dictionaries, and the up-to-the-minute dictionary APPs for smartphones. In explaining the main function of dictionaries in language learning, Béjoint (2002) and Lou and Li (2012) claim that after readers find out and check the meaning of unknown or unfamiliar words, they will not only read and comprehend the text but also improve their acquisition of vocabulary. The expanded vocabulary bank can move learners toward their long-term learning objectives of using their target language spontaneously and expressing themselves explicitly and completely.

Tomaszczyk (1979, as cited in Ryu, 2006) pioneered research into dictionary use and investigated 449 Polish university students of English, foreign language instructors, and translators. The results showed that dictionaries were mainly used for translation, which is not a rare situation at all in EFL contexts. Bilingual dictionaries can quickly provide L1 equivalents of L2 words in this term, so that they are popular among learners at all levels (Atkins & Varantola, 1998; Baxter, 1980) and particularly useful to L2 beginning learners (Béjoint & Mouli, 1987). Among research into bilingual dictionaries, Knight's (1994) study showed that lower proficiency learners improved their reading comprehension by using bilingual dictionaries to look up totally unfamiliar words. Other researchers, such as Hulstijn, Hollander and Grenadius (1996), found that learners of all levels can use bilingual dictionaries to learn vocabulary while advanced learners are more likely to use bilingual dictionaries to confirm their understanding of partially known L2 words (Atkins & Varantola, 1997; Hulstijn, 1993; Knight, 1994).

In spite of quick consultation of L2 words and L1 equivalents, bilingual dictionaries have attracted criticisms; for example, low level L2 learners might have a wrong impression that they can find perfect equivalents in both languages. Due to limited information provided in bilingual dictionaries, L2 learners hardly receive correct knowledge of semantic characteristics of different languages. Hunt (2009, p.14) argues that this weakness of bilingual dictionaries may transform language learning into "a matter of one-to-one word translation," and in turn learners might prefer to employ this strategy to deal with the meanings of unknown words. Simplistic translations are very likely to blur learners' view of correct L2 knowledge and delay their L2 development.

On the other hand, monolingual dictionaries contain rich information of L2 words and usages, including definitions, word classes, example sentences, phrasal verbs, idioms, synonyms, etc. all presented in L2, which can deflect L1 translations of L2 words. By using monolingual dictionaries, learners can receive more of L2 inputs, turn down the possibility of making interference errors, train their ability of thinking in English, and then enhance their comprehension of L2 (Lou & Li, 2012). Despite more reading that L2 learners can have through using monolingual dictionaries, the contents of

monolingual dictionaries used by native speakers and advanced L2 learners might equal to information overload to L2 learners at the low proficiency level. While they are busy identifying the correct meaning of a new word, they might need to crack many other unfamiliar words suddenly appearing in the view of an entry, from which these preoccupied learners might hardly benefit much. In order to counterbalance the cons of using bilingual and monolingual dictionaries and combine their pros, bilingualized dictionaries are published and growing in popularity. As Hartman (1994, p.243) suggests, bilingualized dictionaries are a “hybrid dictionary type” and “a compromise” between two types of L2 dictionaries so that learners can get the best of both worlds. Laufer and Hadar (1997) claim that bilingualized dictionaries give low proficiency learners an additional choice of which types of information they need to refer to (e.g. L1, L2, and both).

Various aspects of L2 words are provided in bilingualized dictionaries. In addition to L1 equivalents, the definitions, example sentences, phrasal verbs, idioms, etc. of L2 words are all presented in both of learners’ L1 and L2. Hence, unlike monolingual dictionaries, L2 information of L2 words is an alternative to L1 explanations for lower proficiency learners to enhance their understanding of L2 word knowledge and to refine their ability to define L2 words by using L2. Other than that, for higher proficiency learners, bilingualized dictionaries can be used to reassure that their knowledge of L2 vocabulary is accurate (Laufer & Hadar, 1997).

In the present study, LASECD (please see one page of the dictionary contents taken from LASECD in Appendix) was chosen to help the comparatively low achievement college students at Wenzao familiarize with the wealth of information that bilingualized dictionaries offer. At the beginning of the fall semester in 2011, the participants’ English teachers provided their students with a training session of dictionary use and exercises for four to six hours. Then, these teachers assigned the students to work on individualized glossary of head words that these students learned in English classes. In their glossary, they wrote down English words, Chinese equivalents, parts of speech, example sentences, family words, and so on. In addition, the three teachers often designed and arranged activities which were relevant to the learning materials in class. They expected to help the students establish their habits of using LASECD, increase their experience of using bilingualized dictionaries to comprehend the reading text, and build vocabulary in order to have a positive influence on the students’ vocabulary learning. Hopefully, these students might stave off their reliance on Chinese translations of words and enrich their understanding of other kinds of knowledge concerning the words to be learned. Around the end of the spring semester in 2012, questionnaires were distributed to 147 students to generate their overall opinions of the dictionary and their dictionary use behavior.

To reiterate, as the dictionary is an indispensable instrument for L2 learning, how learners perceive their dictionary use and their perspectives toward the dictionary which they are using can help the publisher improve the quality of the dictionary as well as shed light on the instruction of dictionary use for teachers and educators.

Objectives of the study

This study aims at researching into comparatively low achievement college students’ perceptions toward using bilingualized dictionary-*Longman Active Study*

English-Chinese Dictionary-when they study English. Their perceptions will be identified to find answers to the following questions:

1. What is students' dictionary use behavior?
2. What types of information in the bilingualized dictionary do students look up?
3. How do students perceive LASECD?
4. How do students perceive the helpfulness of using bilingualized dictionaries in learning English?
5. How do students perceive the instruction of dictionary use?

The findings of this study are expected to provide valuable information to understand how comparatively low achievement college students evaluate their dictionary use in learning English. This study may also serve as a pilot study for further research into dictionary use in the vocational college EFL contexts in Taiwan.

Research Methodology

The participants in this study were 81 freshmen and 66 sophomores, who were attending the required General English Level II Course, constituting of a weekly five-hour integrated English skills class, in the 36-credit English program at Wenzao during the academic year 2011/2012. All these comparatively low achievement participants had roughly a homogeneous background in terms of their first language (i.e. Mandarin Chinese) and the amount of formal English instruction at Wenzao. Their overall CSEPT scores were between 120 and 150, which have been considered as an indicator of their English proficiency. The anonymity of the questionnaire respondents was established by specifically asking them not to write their names on the questionnaires unless they were voluntarily willing to be interviewed in the future when necessary.

The questionnaires were used as the initial survey instrument and the final questionnaires were composed of 29 items including two open-ended questions. The finalized questionnaires were written in Chinese. Questions 1 to 27 used a five-point Likert scale, (item 1~4 and 19~27: 1=strongly agree; 2= agree; 3=somewhat agree; 4=disagree; 5=strongly agree; item 5~18: 1=always; 2= nearly always; 3=half of the time; 4=seldom; 5=never), and asked about the respondents' experience and perceptions of dictionary use. In addition, question 28 and 29 were two open-ended questions to elicit opinions from the students concerning the effectiveness of using dictionaries in English learning and the necessity of receiving instruction of dictionary use at the initial stage of English course. The reliability of the questionnaire was established using test-retest on 46 EFL college students who were excluded from the sample. Chronbach alpha was calculated and found to equal .868 in the pilot study and .883 in the survey. The questionnaire data were gathered in the last 10 to 15 minutes of the students' class time, via prior agreement with the teachers. Of the 152 copies distributed, 147 copies were returned to the researcher, yielding a response of rate of 96.71%. Questionnaire data was analyzed through using the statistical software SPSS 14.0.

Findings and Discussion

In this section, questionnaire data is presented describing the habits and perceptions of using bilingualized dictionaries of 147 Taiwanese EFL college students under study.

The research findings will be discussed by answering five research questions mentioned earlier. In presenting the results of the study, the percentages of each item were calculated to describe and summarize the responses of the students. The results of the items that relate to each research question are presented in tables, and explanations are provided accordingly. For the purpose of illustration, Longman Active Study English-Chinese Dictionary will still be abbreviated as LASECD in the following.

The first research question: “What is students’ dictionary use behavior?” was measured through 4 items (item 1~4) in the questionnaire and the responses are presented in Table 1.

Item	Statement	1	2	3	4	5
1	I am in the habit of using LASECD.	2.8	16.6	37.2	40	3.4
2	I look up unknown English words in the LASECD.	2.7	19	29.3	45.6	3.4
3	I use LASECD when I study English at home.	2	9.5	27.9	54.4	6.1
4	I find LASECD helpful to me.	7.6	28.5	40.3	22.9	0.7

(1=strongly agree; 2=agree; 3=somewhat agree; 4=disagree; 5=strongly disagree)

Table 1: Habits in using the dictionary (response frequencies in percentages)

As Table 1 suggests, 56.6% of the students agreed that they were in the habit of using LASECD. Though it cannot be sure whether these students used LASECD only for their English course use or also for their personal self-study purpose, around half of the students (i.e. 51%) tended to look up unknown English words in this specific bilingualized dictionary. Table 1 also reveals that more than 60% of the students disagreed that they used LASECD at home, which might imply that these students kept treating LASECD use as a classroom requirement and yet learned how to make good use of this language learning tool to improve their English proficiency.

Honestly, this percentage is not satisfactory if students are expected to expand their word knowledge through using dictionaries as frequently as possible. Whereas many of the students did not use LASECD outside the classroom, 76.4% of the students confirmed the helpfulness of LASECD, based on which we might speculate that these students acknowledged the effectiveness of using LASECD in completing the task at hand no matter what it was. Indeed, during the past year the English teachers kept designing activities to focus their level-2 students’ attention on vocabulary learning, to familiarize them with LASECD, and to improve their dictionary-use skills. By doing so, their students were explicitly informed and guided to experience how to learn English words by heart, which might result in better retention and employment of vocabulary in their English outputs through using dictionaries. In response to the first research question, the above findings might suggest that these comparatively low achievement students coming from different learning backgrounds and fields of study would like to use LASECD, and the majority of them perceived it relatively helpful in their English study.

The second research question: “What types of information in the bilingualized dictionary do students look up?” was measured through 14 questionnaire statements (item 5~18). The percentages of their responses are presented in Table 2, and these

types of looked-up information in the dictionary are ranked in Table 3.

Item	Statement	1	2	3	4	5
5	I use LASECD to find out Chinese equivalents of words.	9.5	24.5	40.1	25.9	0
6	I use LASECD to find out English definitions or words.	8.8	30.6	33.3	27.2	0
7	I use LASECD to find out pronunciation of words.	6.1	17	25.9	43.5	7.5
8	I use LASECD to find out derived verb forms.	2.7	22.4	40.1	30.6	4.1
9	I use LASECD to find out collocations.	5.4	21.1	43.5	27.9	2
10	I use LASECD to identify the right meaning of words.	5.4	21.8	43.5	27.2	2
11	I use LASECD to find out parts of speech.	6.8	33.3	32	27.2	0.7
12	I use LASECD to find out family words.	7.5	22.4	38.1	31.3	0.7
13	I use LASECD to find out phrasal verbs and idioms.	6.1	22.4	38.8	32.7	0
14	I use LASECD to find out synonyms of words.	4.1	21.1	37.4	35.4	2
15	I use LASECD to find out opposites of words.	2.7	19	36.1	39.5	2.7
16	I use LASECD to find out example sentences.	12.2	30.6	30.6	26.5	0
17	I use grammar exercises in the learner's handbook of LASECD.	2	5.4	26.5	51	15
18	I use the picture dictionary of LASECD to learn vocabulary.	2	7.5	31.3	46.3	12.9

(1=always; 2=nearly always; 3=half of the time; 4=seldom; 5=never)

Table 2: Types of dictionary information (response frequencies in percentages)

No.	Type of information	percentages	No.	Type of information	percentages
1	Chinese equivalents	74.1	7	phrasal verbs and idioms	67.3
2	Example sentences	73.5	8	verb forms	65.3
3	English definitions	72.8	9	synonyms	62.6
4	part of speech	72.1	10	opposite words	57.8
5	collocations	70.1	11	pronunciation	49
5	right meaning	70.1	12	picture dictionary	41.1
6	family words	68	13	grammar exercises	34

Table 3. Ranked types of looked-up dictionary information (response frequencies in percentages)

The most frequently looked-up information, Chinese equivalents, did not come as a surprise in response to these comparatively low achievement students' strong reliance on the meanings of unknown English words translated into their first language. The high ranking of example sentences, English definitions, part of speech, and the right meaning of words, family words, etc. perhaps can be explained by the fact that the students needed to find out such information in their dictionaries to complete the

assignments or tasks in/after class. Summer (1988) indicates that the definition with examples in the dictionary would benefit reading comprehension to the greatest extent. In order to help students improve their reading comprehension and avoid lack of consistency in using dictionaries, the English teacher asked their students to individually make a glossary of English head words from their textbooks or supplementary reading materials. Students either chose by themselves or were assigned at least five key words every week, looked these words up in their LASECD in their free time, and wrote down Chinese equivalents, English definitions, parts of speech, and example sentences of these must-learned words in their writing pads. Other information, such as pronunciation, usages, phrasal verbs and idioms, synonyms, antonyms, etc., or extra word knowledge of associated lexical items are not compulsory in this assignment. In addition, the English teachers asked their students to bring LASECD to the class from time to time to accomplish in-class activities by finding out key information from their reference materials. By means of glossary and vocabulary learning activities, students could practice their dictionary look-up methods as well as have hands-on experience of viewing the richness of information in dictionaries. Hence, the overall results shown in Table 3 are somehow predictable. As to the least frequently looked-up information, grammar exercises in the learner's handbook had been gone through in the beginning weeks of the first semester in 2011 as part of the instruction of using LASECD.

The third research question: "How do students perceive LASECD?" was measured through 9 items (Question 19~27) in the questionnaire and the results are presented in Table 4.

Item	Statement	1	2	3	4	5
19	The layout of LASECD is designed properly.	11.6	51.7	34.7	1.4	0.7
20	The amount of vocabulary in LASECD is sufficient.	15.6	50.3	29.9	3.4	0.7
21	LASECD provides sufficient user guidance.	13.7	57.5	26.7	2.1	0
22	LASECD provides sufficient grammar exercises to familiarize users with this dictionary.	9.7	44.1	39.3	6.9	0
23	The picture dictionary of LASECD is interesting.	8.2	34.7	43.5	12.9	0.7
24	The experience of using LASECD is enjoyable.	10.2	38.8	42.9	8.2	0
25	The LASECD contents suffice my current needs.	13.6	52.4	30.6	3.4	0
26	LASECD defines words clearly.	15.6	49	33.3	2	0
27	I can easily search an entry in LASECD.	15.6	45.6	35.4	3.4	0

(1=strongly agree; 2=agree; 3=somewhat agree; 4=disagree; 5=strongly disagree)

Table 4: Perceptions of LASECD (response frequencies in percentages)

As Table 4 suggests, merely 2% or so of the respondents (strongly) disagreed with the layout of LASECD, while approximately nine tenths of the participants (95.9% and 97.9%) responded positively toward the dictionary contents including its amount of vocabulary and user guide. As for grammar exercises, 93.1% of the students (9.7% strongly agreed, 44.1% agreed, and 39.3% somewhat agreed) reported their agreement

with the importance of workbook in the learner's handbook in assisting their familiarity with LASECD. In terms of picture dictionary in item 23, a slightly lower percentage (i.e. 86.4%) here might respond to the second least frequently looked-up information in LASECD as shown above in Table 3. Whether or not the picture dictionary is interesting, this finding may be a suggestive remark implying that teachers can refer students to this picture dictionary when the topics in the textbooks are relevant to it such as body parts, action verbs, foods, musical instruments, sounds, directions, sports, and so on. After all, through careful selection by the publisher, the vocabulary words in the picture dictionary must be high frequency words used in real life, and can be learned systematically and collectively. As Schmitt (2000) suggests, learners use visual images to create a strong connection with the word and its meaning to strengthen their memory of this word. In this term, the picture dictionary in LASECD can be a starting point and a likely role model for students to make individualized picture dictionary through drawing and taking notes in their own glossary. The findings also indicate that more than 90% of the respondents claimed their enjoyable experience of using LASECD. Furthermore, 96.6%, 98%, and 96.6% of the respondents at least agreed that the contents of LASECD can satisfy their current needs, and provide them with clear definitions of words as well as easy identification of an entry.

In response to the third research question, the results of the student questionnaire demonstrated that these comparatively low achievement students responded favorably to LASECD overall. Not only might such perceptions establish grounds for the students' future consistent use of LASECD but also indicate that LASECD has achieved user-friendliness to some extent to this group of students.

The fourth research question: "How do students perceive the helpfulness of using bilingualized dictionaries in learning English?" was answered through an open-ended question (item 28). Based on their experience, the respondents were told to include as much information as they thought necessary to answer the question: "How does LASECD help you learn English?" The findings are presented in Table 5.

Item	Responses	Number of responses
28	Positive comments:	
	Overall word information	22
	Related to word information	
	- Usages	13
	- Synonyms	5
	- Pronunciation	4
	- Example sentences	2
	Extended learning	19
	Longer retention of words	15
	Clear definitions	13
	English definitions	12
	Chinese equivalents	7
	Amount of vocabulary	7
	Easy to search an entry	6
	Pictures in the dictionary	2
	High frequency words	1
	Useful when there aren't any electronic	1

dictionaries	
28	Other comments:
	Not helpful 12
	Demotivation for using LASECD 1
	Not portable 1

Table 5. Comments on the helpfulness of LASECD in learning English

In Table 5, most of the comments were made on overall word information in LASECD. For example, one student reported “I think information is more detailed in LASECD than in my pocket electronic dictionary. I can easily find out complete information, such as thesaurus, opposite words, past tense, etc. This dictionary helps me a lot!” Related to word information, some students mentioned specific aspects of word knowledge in response to the question, such as usages (N=13), synonyms (N=5), pronunciation (N=2), and example sentences (N=2). In addition, some students confirmed their extended learning. For example, one of them reported that “I can learn much more when I use the dictionary because there is always other information I didn’t expected to learn.”

Another student stated that “one English word can bring about many phrasal verbs and usages to help me learn more. Good!” In terms of longer retention of words, some students commented on this advantage of using dictionaries in paper form to learn English. As one of them reported, “... looking up English words in the paper dictionary can enhance my memory of them.” Another student reported, “Using the bilingualized dictionary and taking notes in my glossary is the best way to memorize new words. Besides, word information is full and rich.” 13 comments were made on the explicitness of definitions provided in LASECD. 12 comments were concerned with the helpfulness of English definitions of words in learning English, such as “I can learn how to explain a word in English,” “There are no perfect Chinese translations of English words. So I want to know how to define a word in English,” and “English definitions help me better understand example sentences, synonyms and opposite words.” Other opinions were also proposed regarding Chinese equivalents, the sufficient amount of vocabulary in LASECD, search of an entry with ease, colored pictures, and commonly-used words in the questionnaire.

However, a number of students made quite different comments on the helpfulness of using LASECD in English learning. Most of their comments presented the tendency stating that instead of using LASECD they chose to use electronic dictionaries, including pocket electronic dictionary and internet dictionary, when looking up English words. Therefore, they reported that they did not benefit much from this reference book. Furthermore, one student mentioned the issue of portability of paper dictionaries. Limited convenience of paper dictionaries has been reported in many studies (e.g. Ryu, 2006). This finding is not unexpected at all here. Overall, the majority of the comments generated from item 28 shed light onto the effectiveness of using LASECD in learning English in the present study. The students were aware of the extent to which their dictionary use could assist them in learning English words. All in all, L2 can only be acquired through learners’ own efforts. As long as they would like to involve themselves into this learning task, they could gain a great deal from this language learning resource.

Lastly, item 29 (i.e. “Do you think it is necessary to learn how to use LASECD correctly before you start to use it?”) was used to elicit some ideas from students concerning the necessity of advance training or exercises of dictionary use to find the answer to the fifth research question: “How do students perceive the instruction of dictionary use?” 104 students ticked ‘yes,’ 18 students ticked ‘no,’ and 25 chose not to comment. Among these 122 respondents who checked the box, quite a few students stated their reasons in the questionnaires. Most of their responses demonstrated the importance of such guidance given in the beginning of their journey of using dictionaries. For example, dictionary users need to know English words are listed alphabetically in the dictionary, what symbols like [U] and [T] or abbreviations like ‘BrE’ and ‘phr v’ stand for, why some words are printed in bold colors or highlighted, and so on. Such knowledge can assist users in quick search of English words and interpreting and identifying information correctly when they look up words in the dictionary. Even though almost 83% of the respondents confirmed the importance of advance dictionary-use training, few students disagreed with this kind of dictionary use training, and stated that “I already know how to use the dictionary,” “we should learn how to use the dictionary on our own rather than learn it in class,” and “we don’t need to learn it particularly.” In response to item 29, the majority of these written comments present the overall outlook toward the instruction of dictionary use as useful, helpful, and indispensable.

Conclusion

The present study attempts to find out the dictionary look-up behavior of comparatively low achievement level college students in the research context. In accordance with their English proficiency, LASECD was selected and used in the Level II English Course to help students arrive at better English vocabulary learning in the academic year 2011-12. English teachers guided their students in using this dictionary in the beginning of the fall semester. Students then came to get familiar with dictionary use through completing learning activities, exercises, and assignments in their English classes. After eight months of dictionary use (four months in Semester One and Semester Two), the questionnaires were attributed to 147 students to generate their opinions of using LASECD and their perceptions toward this dictionary and its helpfulness in learning English.

The overall results of this survey suggest that these comparatively low achievement students could benefit from LASECD in learning English and started to build up the habit of dictionary use when looking up English words. Although less than 40% of the students would use LASECD at home, the results suggest that 76.4% of these LASECD users found this dictionary helpful in studying English. It is a given fact that when users gain positive experience and hold positive inclinations toward this reference input, they will be more likely to maintain their user habits and consequently expand their bank of English vocabulary. Thus, students’ views on LASECD might respond to their preference style of vocabulary learning, which may make suggestions to their teachers in subsequent course design.

In this research, we can see that Chinese equivalents are the most frequently looked up information in the dictionary. As far as this group of students is concerned, perhaps it is not necessary to forbid learners at this low English proficiency level from looking up Chinese equivalents of unknown or unfamiliar English words. Rather, teachers can

try to transfer students' attention to word information interpreted in the target language (i.e. English definitions), and guide them to actually employ definitions through making reference to example sentences suggested in dictionaries or making new, correct sentences. As Baxter (1980, p. 334) argues, "(L2) definition is an alternative to the use of lexical items." Being able to define words in English can not only heighten students' confidence in using the language but also enhance their holistic understanding of new vocabulary. Hunt (2009) also suggests that consulting both L1 and L2 information might lead to students' better retention of word knowledge than when students gain access only to L1 information. When learning a new word this way, the deeper mental processing is more likely to help students remember the word as one of the research results has been discussed earlier. This benefit can sort of outweigh the elongated time period of consulting words in book dictionaries.

Despite its strength points, the publisher might take the necessity of advance training sessions and exercises into consideration before students start to use dictionaries independently. Such guidance can be arranged at the initial stage of the English course in order to help those who have not understood the correct concept of word information, who have yet acquired correct knowledge of dictionary use, and who have never been aware of this vocabulary learning strategy. In addition to teachers' instruction and the learner's handbook which has been compiled in LASECD, there can be other possibilities of making this reference book more user-friendly and convenient. For example, a teacher's book can be designed to provide instructors with suggestions for dictionary-use activities or classroom assessment to make sure if students all have learned how to use LASECD accurately and efficiently.

Professional guidance and useful exercises need to go hand in hand in boosting students' understanding of how LASECD can help them learn English better. As Hartmann (1991, p. 9) suggests, "it is not enough just to recommend dictionaries to our students. To help them reap the benefits of good dictionaries, they need to be taught explicitly how to use them." By revealing the relation between dictionary use, classroom vocabulary behavior, and students' success in finding words to meet their communicative needs, this is an important issue both for the publisher and instructors to think when they face low level English learners and dictionary users.

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Appendix A: Contents of LASECD (one page taken from the dictionary)

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mobile
 a shop etc in a vehicle which is driven from place to place 流動商店/流動診所等
mobile /'mɒbi:l/ n [C] 1 a mobile phone 移動電話; 手機 2 a decoration made of small objects that hang down on wires or strings and move when air blows around them (裝飾的) 風動飾物
mobile /'maʊbi:l/ n [C] 1. 8c a large caravan which always stays in the same place and is used as a house [英] 1. 固定住家向作住屋的 旅行拖車 2. AmE a type of house made of metal, that can be pulled by a vehicle and moved to another place [美] 1. 可用車輛拖拉的 活動住屋
MOBILE PHONE n [C] 8c a telephone that you can carry with you and use anywhere [英] 1. 移動電話; 手機
 To use a mobile phone, you first **switch it on**.
 * 使用手機前首先要把它打開 (switch on).
 Then you can either **call** someone or **listen to messages**: that people have left you on your voicemail. You can also read **text messages** (written messages) or **text** someone (send them a text message). * 然後你可以給某人打電話 (call someone) 或收聽別人在你語音信箱 (voicemail) 裡的留言 (listen to messages), 你也可以看短訊 (text messages) 或發短訊 (text someone).
 → TELEPHONE

mobility /məʊ'bi:lɪti/ n [U] 1 the ability to move easily from one job, area, or social class to another 流動性; 高遷性; **social mobility** 社會階層的流動性 2 the ability to move easily 流動性; 靈活性; **elderly people with limited mobility** 行動不便的老人
mobilize also 文作 **-ise** /'mɒblaɪz/ n [U] 1 to encourage people to support something in an active way 組織; 鼓動; 動員; a **campaign to mobilize support for the strike** 動員大眾支持罷工的宣傳活動 2 [U] if a country mobilizes, or mobilizes its army, it prepares to fight a war (國家軍等) 動員起來; 動員 (軍隊) → mobilization /'mɒblaɪz(ə)ʃən/ n [C,U]
mobilizer /'mɒblaɪzə/ n [C,U] especially AmE a member of a criminal group [尤美] 犯罪團成員; 匪徒; 歹徒
mock /mɒk/ n [U] 1 to try to make someone seem stupid, for example by copying

them or saying unkind things about them 冒充; 嘲弄; Are you **afraid**? he **mocked** "你害怕了?" 他嘲笑道。 — mockingly adv
mock /'mɒk/ n [U] 1. 8c a person who is intended to be very similar to something real 模版的; 模仿的; a **mock interview** 模擬面試 | **mock surprise/horror** etc She shook her head in **mock disgust**. 她裝出厭惡的樣子搖了搖頭。
mock /'mɒk/ n [C] 8c a school examination taken as practice for a formal examination (笑) 模擬考試
mockery /'mɒkəri/ n [U] 1 **make a mockery of sth** to make a plan, system, organization etc seem useless or stupid 使... 得無用(無效); His release makes a **mockery of the law**. 他的釋放使對法律的嘲諷。 2 [U] when someone laughs at someone or something or tries to make them seem stupid 嘲笑; 諷刺
mock-up n [C] 1 a model of something, made before the real thing is built, or made for a film, show etc 實體模型; 實物模型
modal verb /'mɒdəl/ 'vɜ:b, 'mɒdəl/ 'vɜ:b/ also 文作 **modal n** [C] technical verb such as 'can', 'might', or 'must' that is used with other verbs to show ideas such as possibility, permission, or intention (情態) 情態動詞
mode /'mɒd/ n [C] formal a particular way of behaving, living, or doing something [正式] 方式; 方法; **of different modes of transport** 不同的交通方式
MODEL /'mɒdl/ 'mɒdi/ n [C] 1 a small copy of a building, vehicle, machine etc, especially one that can be made from separate parts 模型; **of a model of the Eiffel Tower** 艾菲爾鐵塔仿模型 | Simon spends hours **making models**. 西蒙花很多時間製作模型。 | 1 a **working model** (someone with parts that move) of a steam engine 蒸汽機活動模型
 2 someone whose job is to show clothes, hair styles etc by wearing them at fashion shows or for photographs (專業模特) 模特兒
 3 a particular type or design of a vehicle or machine (汽車或機器) 的款式; 型號; the **latest** (newest) **model from BMW** 最新推出的款型
 4 a computer representation or scientific description of something (用於數據或物理) 電腦模型; 電腦模擬; 科學模型; 科學模型; **of computer models of climate change** 氣候變化電腦模型
 5 someone or something which people want to copy because they are successful or have good qualities 模範; 典範; **for** This approach may **serve as a model** (=be used as a model)

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modest
 1 only before noun 僅用於名詞前] **modest control of your behaviour and ideas** [正式] 行為和思想上的節制; 克制; 中庸
 2 [only before noun 僅用於名詞前] belonging to the present time or most recent time (= contemporary) 現代的; 當代的; in the **modern world** 在當今世界 | people in **modern society** 現代社會中的人們 | one of the **greatest events of modern times** 現代的大事之一
 2 using the most recent designs, methods, ideas etc 新式的; 現代的; the use of **modern technology** 現代技術的應用 | advances in **modern medicine** 現代醫學的進步 | The school is very **modern in its approach to sex education**. 這所學校的性教育觀念非常新穎。
MODERNISM
 the latest 最近的; 最新的; the very latest **mobile phones** 最新型號的手機 | the **latest summer fashions** 最新的夏裝
up-to-date — used about modern equipment or methods (設備或方法) 現代的; 新式的; up-to-date training methods 最新式的培訓方式
advanced — used about modern weapons, machines, and systems (武器, 機器等) 先進的; an **advanced security system** 先進的保安系統
high-tech/high-tech — using very modern electronic equipment and machines, especially computers 高科技的; high-tech graphics 高科技排版
 → NEW

3 [only before noun 僅用於名詞前] **modern art**, music, literature etc uses styles that are very different from traditional styles (藝術, 音樂, 文學等) 當代風格的; 現代派的; **modern dance** 現代舞
 — modernity /mə'dɜ:nɪti/ n [U] a conflict between tradition and modernity 傳統和現代的衝突
modern-day adj [only before noun 僅用於名詞前] existing now, not in the past 現代的; 當代的; **modern-day Egypt** 現代埃及
modernize also 文作 **-ise** /'mɒdənaɪz(ə)ʃən/ n [C,U] 1 to make something more modern, or to become more modern (使) 現代化; plans to **modernize the factory** 工廠現代化計劃 — modernization /'mɒdənaɪz(ə)ʃən/ n [C,U]
modern languages n [C,U] 被認為比傳統語言更現代的語言; 現代語言
modernist /'mɒdənist/ n [C] a person who is **modernist** does not talk in a



The Comparison of Two Different Text Processing Skills to Enhance EFL Reading Comprehension: Summarizing vs. Listing the Main Points

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Abstract

As a global skill, reading is a cognitive activity including both surface and deep processing on its core, and developing reading comprehension is an important aspect of EFL as it requires the use of macro-level processing based on schema activation. The present study investigated the efficiency of two different text processing skills of reading comprehension; namely, “summarizing” and “listing the main points in a text”. The main assumption was that as a depth processing skill, summary writing requires macro level processing steps including selection of the main ideas, understanding the logical connections among them, and spending more mental effort and more involvement while reading, which promotes better comprehension. The participants of the study were second-year Turkish EFL university students (N=50) from the same proficiency level at the Department of English Language Teaching. They were divided into two groups randomly and read an argumentative essay. The first group wrote a summary, while the other group made a list of the main points after reading the essay. Then, they were given the same multiple-choice and open-ended reading comprehension items in order to examine if there were any significant differences regarding their comprehension level. The findings revealed that summary writing condition really promoted the overall reading comprehension and success of the language learners better. The findings have certain implications for the fields of Language Education and Applied Linguistics, as they can guide EFL teachers in designing their reading comprehension activities.

Keywords: EFL Reading comprehension, text processing, language learning

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Introduction

Reading is one of the most important areas in foreign language learning process, and therefore there are many studies focusing on its occurrence, comprehension process, its assessment and ways to enhance its success. Mainly, reading can be seen as the combination of taking explicitly given information and deriving more global, abstract meanings from the text. In that sense, comprehension is the integration of these two processes. The main discussion behind the reading process is the relationship between process and product dimensions. Alderson (2000) claims that the process refers to the reading event that is the interaction between the readers and the text; and the reader not only looks at the text, but also decides how the ideas are related to each other in the organization of the text in the meaning-making process. Product component, on the other hand, refers to the condition where the reader combines the information in the text with his/her own experiences and background knowledge so that s/he can realize how the main assumption of the text is related to his/her own identity.

As reading is a complex process, researchers generally tend to explore its components or steps in order to explain the fluent reading process (Grabe, 1991; Linderholm et al., 2000). There are certain factors associated with reading comprehension, such as the reader, the text, prior knowledge-schemata theory, reading strategies and metacognitive awareness (Wixson and Peters, 1987). Texts are also important for the comprehension level as they have also certain features affecting the comprehension of the readers (Linderholm et al., 2000; Geiger and Millis, 2004). Besides, prior knowledge and metacognitive strategies play a crucial role in the reading comprehension process.

Prior knowledge that is directly related to reader's background knowledge about the content enhances his/her understanding in a positive manner. Kozminsky & Kozminsky (2001) claim that prior knowledge referring to whatever readers already know about events, ideas or object described in the texts influences the meaning that they construct from the text, and this is directly related to schema theory. Student with a good understanding of the text generally tend to combine the new information in the text with their own general knowledge called world knowledge in that sense. Apart from these, reading strategies are highly associated with reading comprehension as readers tend to use various strategies in the reading and meaning-making processes (Carrell, 1989). Lastly, metacognitive awareness is directly associated with reading comprehension, as readers who are aware of their own thinking and learning process become better readers and comprehend the texts in a better way (Guterman, 2002; Eilers and Pinkley, 2006). Therefore, metacognitive awareness guidance can be accepted as an effective and productive way to enhance reading comprehension and monitor it. Explicit instruction of metacognitive strategies is an effective instruction method as it promotes better comprehension, and also more independent text processing skills.

Text Processing Models

There are various models of reading indicated in literature. Especially, the bottom-up and top-down models of reading are highly stressed models as they reflect the reading process in surface and deep levels. Also called text-based, text-dependent or data-driven model, bottom-up model refers to fact that successful reading is a matter of

decoding the individual words in a text in order to derive a meaning (Ayari, 1998; Alderson, 2000). Top-down view, on the other hand, uses discursal and real-world knowledge to construct and interpret messages in the text. It is also called conceptually-driven, reader-based or knowledge-based. The reader who is at the heart of the reading process, uses his/her past experiences and important aspects in the text in order to get the meaning.

Schema is greatly emphasized in this model as the background knowledge allows the reader to create or reconstruct a meaning between his/her prior knowledge and new incoming information in the text. Apart from these two models, there is also interactive model referring to the combination of bottom-up and top-down processes, and it is the favorable method in instruction as these methods are both effective and useful to a certain extent. Ayari suggests that interactive model provides a more accurate conceptualization of the reading process as readers generally tend to benefit from both bottom-up and top-down procedures while reading a text. Grabe (1991) suggests that interactive approaches refer to two different conceptions and he gives different classifications. First of all, the interaction can be between the reader and the text so that the reader constructs the meaning in the text again through his/her own observations and experiences. Besides, this interaction can be between skills as high and low processing including automatic identification skills and interpretation skills in that sense.

There is a discrimination between reading the lines and reading between the lines referring to the fact that the reading process not only includes recognitions of the main ideas defined explicitly in the text (micro-level processing), but also the realization of the underlying meanings, literal components and the background understanding or assumptions of the writer (macro-level processing). Microlevel processing includes certain skills such as recognizing the script of the language, understanding explicitly stated information, understanding conceptual meaning, understanding relations within the sentence, distinguishing the main idea and the supporting details, skimming, scanning and interpreting the main ideas in the text. Macrolevel processing, on the other hand, is much more related to deeper levels and readers should be critical in their interpretations and meaning-making process (Lehto et al., 2001; Britt and Sommer, 2004; Nassaji, 2003). According to Van Dijk (1979; cited in Hutchins, 1987), text understanding requires the determination of the thematic and semantic progression of sentences and clauses at the lowest level referring to microstructure; however, there is also the construction of global organizational patterns associated with macrostructure. He claims that full or overall understanding of a text or the message in the text requires the integration of these skills with reader's background knowledge related to the main topics.

There are various text processing skills under micro and macro-level reading comprehension strategies. Most common ones analyzed by the researchers include note-taking strategies (Faber et al, 2000; Lia, 1993), free recall strategies (Berkemeyer, 1989; cited in Heinz, 2004), answering the short-answer and open-ended questions (Applegate et al., 2002; Lia, 1993), and summarizing which is a deeper processing task (Bensoussan and Kreidnler, 1990; Ayari, 1998; Britt and Sommer, 2004; Hutchins, 1987; Foss, 1995; Oded and Walters, 2001).

Summarizing as a Text Processing Skill: A Deeper Processing Task

Bensoussan and Kreidnler (1990: 55) define summarizing as “an activity well suited to sensitizing advanced foreign language readers to the inner workings of a text and weaning them away from word-to-word decoding”. In the summarizing process, the reader is asked to reproduce the text in a manner s/he remembers. It is based on the reader’s attending to the essential information in the text and also his/her self-remembering and interest. It is a good way to understand to what extent the reader can distinguish the important aspects in the text from the less important ones. (Ayari, 1998). Britt and Sommer (2004) claim that summarizing is also one of the higher level text processing skills that helps the reactivation of a text’s macrostructure. To form a summary, the reader selects only the most important information and eliminates the unnecessary details. S/he makes inferences from the related parts and reactivates his/her prior knowledge with the help of the integration process.

According to Foss (1995), summarizing refers to writing summaries of the main points of a portion of text that has just been read. Summarization is thought to be beneficial because it provides practice in retrieving important information, and retrieval practice has been shown to be beneficial for later performance in a variety of situations. The macroprocessing strategy training like main idea summarization supports reading comprehension, as readers find the opportunity to identify the important related points within the texts and they can combine them in the meaning-making process effectively. Summary writing enhances better understanding and recall of the main ideas in the text (Kobayashi, 2002). Summarization is directly related to metacognitive awareness and there are various studies investigating the summary training instruction as a metacognitive instruction process (Ponce, 2000). Studies in Literature reveal that making summaries enhances better retrieval and deeper processing in terms of reading comprehension.

Present Study

Based on the assumptions and findings of the previous studies done about text processing skills and reading comprehension in L2, the present study aimed to explore the effects of two different text processing skills as writing summary and listing the main points on EFL reading comprehension. Besides, it was expected to determine which skill promotes or enhances comprehension more at the end of the study.

Participants

The participants of the study were 50 second-year Turkish EFL University students from the same proficiency level and they were enrolled in the Department of Foreign Language Education of Anadolu University. They were from the same L1 background that is Turkish. There were generally female students, as the department is much more preferable by this group of learners. They had been learning English for at least 7 years by the time of the study. In order to enter this department, they passed the National Foreign Language Proficiency Exam and English Proficiency Exam administered by the university. The proficiency exam held by the university preparation department is equal to a TOEFL test with listening, grammar, reading and writing sections. Their English proficiency level was assumed to be Upper-Intermediate as they almost passed this exam. Besides, this group was selected

intentionally as they were taking both reading and writing courses as second year EFL university students. For the purposes of the study, they were divided into two groups randomly to perform the tasks. At the time of the study, they had already learnt certain reading and writing skills.

Instruments

A text used for the study was an 800-word entitled “Saving Nature, But Only For Men” (Time, 17 June 1991; see Appendix). As the text was used by Oded and Walters beforehand, its readability level was measured and they claimed that it was a suitable text in terms of content and level. As for comprehension questions in order to assess the understanding of the participants and also the comparison of two conditions, a set of seven multiple-choice comprehension questions designed by Oded and Walters were used without making any change. These questions were created according to focusing on the main ideas, purpose of the author, organization of the text and key supporting evidence. They claimed that there weren't not any open-ended or short-answer questions as the participant already write them through summaries and list of examples. However, in the current study, a set of four open-ended questions have been added in order to assess the comprehension of readers on explicit information given in the text. Their reliability was measured through a pilot study with 5 students from the same proficiency level as the target population in the study. The results of the reliability scores revealed that the items were reliable .87.

Research Questions and Hypothesis

1. What is the overall comprehension success of the summary writing group in terms of their multiple-choice and open-ended comprehension items scores?
2. What is the overall comprehension success of listing the main points group in terms of their multiple-choice and open-ended comprehension items scores?
3. To what extent is there a difference between deep and surface processing represented by two groups in the study?
4. Which one of these text-processing skills promotes reading comprehension more?

The main hypothesis was that summary writing would enhance integrative processing that involves both analysis and synthesis of various linguistic and cognitive domains and this will lead to better comprehension at the end. As a depth processing skill, it required macro level processing steps including selection of the main ideas, understanding the logical connections among them, spending more mental effort and more involvement while reading. On the other hand, listing the main points task was expected to result in less comprehension as a micro level strategy.

Procedure

The participants were divided randomly into two groups took two different conditions in the study. The first group taking the summary condition wrote a summary, while the other group listed the main points in the essay. The applications were conducted in their EFL classrooms. Every student was exposed to the same target text. Any extra instruction necessary was given by the researcher whenever needed.

Data Analysis

First of all, summaries were read by the researcher and a co-language teacher who was good at assessing the written responses of the students in order to see if participants really could catch the important idea units in the text or misread it. This was important since a wrong summary could be the reason behind wrong answers later on. The same thing was applied for the list of examples written by the participants, in order to evaluate whether the participants really gave correct examples or not (interrater reliability of the summary scores was .93; it was .88 for listing the main points group). Scores for the multiple-choice and open-ended comprehension questions were measured as a percentage of correct answers. This analysis was done for both summary and listing the main points groups separately. After the descriptive statistics, t-test was administered in order to examine the scores of the participants from summary and listing the main points conditions in terms multiple-choice and open-ended comprehension items. The results have been discussed under each research question below.

In order to address the first research question, first of all, overall mean percentages of the summary group in two different comprehension tasks was measured by measuring the percentage of the correct responses. Table 1 below indicates the overall percentage score of the summary writing group in multiple-choice and open-ended comprehension items. It was found that the mean score for the summary group in the multiple-choice task was .77,85; and this was very similar for the open-ended items task as the mean score for this task was 77,50. The results revealed that the summary group was highly successful at both comprehension tests.

Table 1. Comprehension Scores of the Summary Writing Group

Summary writing group	Mean
Multiple choice Questions	77,85
Open-ended Questions	77,50

In order to explore the success of the listing the main points group in these two comprehension tasks, overall mean percentages of this group were also analyzed by measuring the percentage of the correct responses. Table 2 indicates the overall percentage score of the this group in multiple-choice and open-ended comprehension items. It was found that the mean score of the examples group in the multiple-choice task was .47,14; while it was 58,75 for the open-ended items task. When compared with the summary group scores, it was observed that there was a great decrease of the success in the examples group.

Table 2. Comprehension scores of listing the main points group

Listing the main points group	Mean
Multiple choice Questions	47,14
Open-ended Questions	58,75

The summary writing condition was generally associated with the deeper processing, while listing the main points condition represented the surface processing. In that

sense, in order to explore the differences between these two processes, descriptive statistics were compared by applying a t-test. Table 3 indicates the findings of descriptive statistics and group dynamics for two different conditions at the same test. The t-test results performed on the descriptive scores revealed a significant difference between the two conditions ($p < 0.05$). The mean scores of the participants in the summary and example conditions were 5,45 and 3,30. As a result, the students who did summary task performed better on the multiple-choice comprehension task on the whole.

Table 3. Group statistics for the multiple-choice test

<i>Test</i>	<i>Condition</i>	<i>mean</i>	<i>SD</i>	<i>P</i>
Multiple-Choice	Summary writing group	5,45	,82	,000
	Listing the main points group	3,30	1,17	

The same statistical analysis and t-test were applied for the open-ended test scores, too. Table 4 indicates the findings of descriptive statistics and group dynamics for two different conditions at the same test. The t-test results performed on the descriptive scores revealed a significant difference between the two conditions ($p < 0.05$). The mean scores of the participants in the summary and listing the main points conditions were 3,10 and 2,35. As a result, the students who did summary task performed better on the open-ended comprehension test on the whole

Table 4. Group statistics for the open-ended test

<i>Test</i>	<i>Condition</i>	<i>mean</i>	<i>SD</i>	<i>P</i>
Open-Ended	Summary writing group	3,10	,85	,012
	Listing the main points group	2,35	,93	

The findings reported through t-test demonstrated that the summary group outperformed the listing the main points group both in the multiple-choice and open-ended scores, and this revealed that summary was a more promoting activity for overall reading comprehension and there were significant differences between these two different text processing skills or tasks.

Finally, in order to explore the difference between these two text processing skills, the overall descriptive statistics were analyzed for both tests. Table 5 indicates the overall mean percentages for summary and listing the main points conditions. It was found that the overall success in the summary condition was .77; while it was just .51 for the listing the main points condition.

Table 5. Total success percentage of two groups in both tests

<i>Overall success</i>	<i>Mean percentage</i>
Summary writing group	77,72
Listing the main points group	51,36

Conclusion and Discussion

The main purpose of the study was to examine to what extent two different text processing skills result in different performances and success rates in terms of overall reading comprehension. The underlying assumption was that as a depth processing skill, summary writing requires macro level processing steps including selection of the main ideas, understanding the logical connections among them, and spending more mental effort and more involvement while reading, which promote comprehension. In that sense, it was expected that the summary group would outperform the listing the main points group that was based on the surface level text processing and comprehension level only. It was expected that summary writing as a deeper process would facilitate or promote better comprehension.

The findings revealed that the overall comprehension and success of the listing the main points group on both tests were relatively lower when compared with the overall success of the summary group. Such a finding promotes the effectiveness of summary writing on the general reading comprehension process. In addition, it was found that both groups became more successful at the open-ended items. The main reason behind this was especially the similarity between the summary task and answering open – ended items. Both of them required a deeper process. Listing the main points group was also good at the open-ended items as they had also dealt with the main issue in the text while making lists of examples. However, writing only the key words in the text or forming an outline from the text are not as effective strategies as summary writing, since while writing summaries, the readers restructure the main ideas in the text and they have to form the logical connections among ideas in order to fulfill this task. All in all, it was found that summary writing was a better process to promote reading comprehension, because summary writers concentrate on the whole text, try to see the logical connections between ideas and paragraphs in order to get a clearer mental image at the end of the reading process.

The main implication for such a finding can be the effectiveness of summary writing training. To form a summary, the reader selects only the most important information and eliminates unnecessary details. S/he makes inferences from the related parts and reactivates his/her prior knowledge with the help of the integration process. As a macro-structure text integration process, summary writing is effective on promoting comprehension. It is hoped that the findings of this study will contribute to the general views towards teaching and gaining EFL reading comprehension process since summary writing is a good and effective practice to promote text comprehension. In that sense, language teacher may focus on the deeper processing in order to facilitate better comprehension and retrieval. The most important educational implication of this study can be to train less skilled readers to write a summary of the main ideas in the text they read. By doing so, they can realize the meaningful connections among ideas and can create maps for further information.

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Appendix

Text: Saving Nature, But Only For Men

Environmental sensitivity is now as required an attitude in polite society as is, say, belief in democracy or aversion to polyester. But now that everyone from Ted Turner to George Bush, Dew to Exxon has professed love for Mother Earth, how are we to choose among the dozens of conflicting proposals, restrictions, projects, regulations and laws advanced in the name of the environment? Clearly not everything with an environmental claim is worth doing. How to choose?

There is a simple way. First, distinguish between environmental luxuries and environmental necessities. Luxuries are those things it would be nice to have if costless. Necessities are those things we must have regardless. Then apply a rule. Call it the fundamental axiom of sane environmentalism: Combatting ecological change that directly threatens the health and safety of people is an environmental necessity. All else is luxury.

For example: preserving the atmosphere--stopping ozone depletion and the greenhouse effect--is an environmental necessity. In April scientists reported that ozone damage is far worse than previously thought. Ozone depletion not only causes skin cancer and eye cataracts, it also destroys plankton, the beginning of the food chain atop which we humans sit.

The reality of the greenhouse effect is more speculative, though its possible consequences are far deadlier: melting ice caps, flooded coastlines, disrupted climate, parched plains and, ultimately, empty breadbaskets. The American Midwest feeds the world. Are we prepared to see Iowa acquire Albuquerque's climate? And Siberia acquire Iowa's?

Ozone depletion and the greenhouse effect are human disasters. They happen to occur in the environment. But they are urgent because they directly threaten man. A sane environmentalism, the only kind of environmentalism that will win universal public support, begins by unashamedly declaring that nature is here to serve man. A sane environmentalism is entirely anthropocentric: it enjoins man to preserve nature, but on the grounds of self-preservation.

A sane environmentalism does not sentimentalize the earth. It does not ask people to sacrifice in the name of other creatures. After all, it is hard enough to ask people to sacrifice in the name of other humans. (Think of the chronic public resistance to foreign aid and welfare.) Ask hardworking voters to sacrifice in the name of the snail darter, and, if they are feeling polite; they will give you a shrug.

Of course, this anthropocentrism runs against the grain of a contemporary environmentalism that indulges in earth worship to the point of idolatry. One scientific theory--Gala theory--actually claims that Earth is a living organism. This kind of environmentalism likes to consider itself spiritual. It is nothing more than sentimental. It takes, for example, a highly selective view of the benignity of nature. My nature worship stops with the April twister that came through Andover, Kans., or

.the May cyclone that killed more than 125,000 Bengalis and left 10 million (!) homeless.

A nonsentimental environmentalism is one founded on Protagoras' maxim that "Man is the measure of all things." Such a principle helps us through the thicket of environmental argument. Take the current debate raging over oil drilling in a corner of the Alaska National Wildlife Refuge. Environmentalists, mobilizing against a bill working its way through Congress to permit such exploration, argue that we should be conserving energy instead of drilling for it. This is a false either/or proposition. The country does need a sizable energy tax to reduce consumption. But it needs more production too. Government estimates indicate a nearly fifty-fifty chance that under the ANWR lies one of the five largest oil fields ever discovered in America.

We have just come through a war fought in part over oil. Energy dependence costs Americans not just dollars but lives. It is a bizarre sentimentalism that would deny ourselves oil that is peacefully attainable because it risks disrupting the calving grounds of Arctic caribou.

I like the caribou as much as the next man. And I would be rather sorry if their mating patterns are disturbed. But you can't have everything. And if the choice is between the welfare of caribou and reducing an oil dependency that gets people killed in wars, I choose man over caribou every time.

Similarly the spotted owl. I am no enemy of the owl. If it could be preserved at no or little cost, I would agree: the variety of nature is a good, a high aesthetic good. But it is no more than that. And sometimes aesthetic goods have to be sacrificed to the more fundamental ones. If the cost of preserving the spotted owl is the loss of livelihood for 30,000 logging families, I choose family over owl.

The important distinction is between those environmental goods that are fundamental and those that are merely aesthetic. Nature is our ward. It is not our master. It is to be respected and even cultivated. But it is man's world. And when man has to choose between his well-being and that of nature, nature will have to accommodate.

Man should accommodate only when his fate and that of nature are inextricably bound up. The most urgent accommodation must be made when the very integrity of man's habitat--e.g., atmospheric ozone--is threatened. When the threat to man is of a lesser order (say, the pollutants from coal- and oil-fired generators that cause death from disease but not fatal damage to the ecosystem), a more modulated accommodation that balances economic against health concerns is in order. But in either case the principle is the same: protect the environment--because it is man's environment.

The sentimental environmentalists will call this saving nature with a totally wrong frame of mind. Exactly. A sane--a humanistic--environmentalism does it not for nature's sake but for our own.

Multiple-choice comprehension questions on the text:

1. What is the main purpose of the writer?
 - a. to present the different views on environmentalism
 - b. to argue for his type of environmentalism
 - c. to argue against any kind of environmentalism
 - d. to analyze the reasons for environmentalism

2. How does the writer organize the text?
 - a. as a contrast between two kinds of environmentalism
 - b. as a description of environmental problems on earth
 - c. as a history of the relationship between environmentalism and democracy
 - d. as an analysis of environmental disasters in the past

3. Which idea below does the writer consider most important in a correct theory of environmentalism?
 - a. sacrificing for other creatures
 - b. providing for the needs of man
 - c. fighting the danger of pollution
 - d. taking steps to preserve nature

4. According to the writer, why should we save nature?
 - a. because nature is beautiful
 - b. because there is too much waste
 - c. because nature benefits us
 - d. because we are spiritual creatures

5. At the end of paragraph 7, the writer mentions “the many deaths caused by natural disasters.” What general point does this example illustrate?
 - a. The Earth is a living organism.
 - b. Nature is not only benign.
 - c. Nature selects its victims.
 - d. Man is a measure of all things.

6. Why is the writer in favor of oil drilling in Alaska?
 - a. He feels that Americans need to reduce energy consumption.
 - b. He does not believe in energy taxes for oil consumption.
 - c. He believes that America should not fight wars to obtain oil.
 - d. He is sentimental about conserving the Arctic reindeer.

7. According to the writer, which example illustrates an environmental luxury?
 - a. stopping the greenhouse effect
 - b. stopping ozone depletion
 - c. stopping oil drilling in Alaska
 - d. stopping the use of oil-fired generators.

Open-ended comprehension questions on the text:

1. What is the boundary between environmental necessities and environmental luxuries?
2. What is the main point that the author suggests behind the ozone depletion and greenhouse effect examples?
3. What is the debate about oil drilling in the text?
4. According to the text, what do you understand from the following quotations; “nature is here to serve man” and “protect the environment, because it is man’s environment”?



*An Interdisciplinary Approach to Promote Innovation and Creativity
in the Field of Sustainability*

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Abstract

To create a transformative connection among science, technology, engineering, and mathematics (STEM) disciplines, Southern University (SU) uses an interdisciplinary approach to promote innovation and creativity in the field of sustainability. An undergraduate concentration in sustainability has been developed and the Bachelor Degree in Sustainability is expected to be completed and approved. The Sustainability Research Experience in China program was created and implemented since the summer semester 2011. The program provided students and their faculty mentors the opportunity to obtain a global perspective on sustainability research in the areas of sustainable materials, energy, technology, climate change, ecosystem and natural resources. SU has reviewed the current institutional internationalization activities and developed a set of global learning and engagement goals and objectives. SU has formed an internationalization leadership team suited to accomplishment of the institutional goals. In respond to the Louisiana Workforce Investment for a Stronger Economy (WISE), SU has developed a SU WISE that appropriately linked teaching and learning to positively impact the workforce development. The SU WISE includes a Center for Smart Composite Materials Modeling and Manufacturing, and a Bioenergy Research and Development Platform. The SU WISE integrates academics, research, and business partnering in a more functional manner with overall objectives that promote greater faculty and student experiential engagement and greater economic development. Through these teaching and learning innovations, SU enhanced the curricular and promoted sustainability teaching and learning, broadened international engagement in education and research, advanced internationalization, and contributed to STEM workforce development.

Keywords: Sustainability, interdisciplinary, internationalization, workforce development, curricular enhancement.

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Introduction

Sustainability is a complex subject which must be addressed by multiple disciplines. An interdisciplinary program in Sustainability will promote interdisciplinary academic engagement of students and faculty. To foster this engagement among disciplines in sustainability, Southern University (SU) has implemented a National Science Foundation funded HBCU-UP ACE Implementation Project and an USDA NIFA funded capacity building project. The first step toward is to establish a Sustainability Program and an academic concentration area in Sustainability. The program and the concentration would allow students of several majors to gain general knowledge of the concepts of sustainability as well as specific knowledge of topics of sustainability relative to their major field.

Goal and Objectives

The major goal of the projects is to create a transformative connection between STEM disciplines, research and development, and international engagement using an interdisciplinary approach to promote innovation and creativity in the field of sustainability. To achieve the project objectives on increasing interdisciplinary academic and research engagement of students and faculty, the projects carried out the primary activities such as development of interdisciplinary bachelor's programs in sustainability; study abroad opportunities and programs; and research engagement and STEM workforce development.

Interdisciplinary Approach

According to the National Academy of Sciences (NAS, 2004 and 2005), "Increasingly, the most significant new scientific and engineering advances...cut across several disciplines." NAS also reports that, students are strongly attracted to interdisciplinary courses, especially those of societal relevance. One NAS report cites the example of Stanford University which increased student interest and improved STEM graduation rates with implementation of an interdisciplinary program. The benefits of interdisciplinary education have been reported to include enhancing students' knowledge, attitudes, skills and beliefs, in particular on understanding of professional roles, flexibility, problem-solving, and inquiry. NAS also reports that lessons learned from industry and national laboratories provide strong evidence that interdisciplinary partnerships benefit research effectiveness and promote diversity.

As the Nation and the State make strides towards meeting goals for a vibrant economy, competitive workforce, and a cleaner environment, SU is actively engaged in these endeavors. Consistent with the Nation's and the State's focus on stimulating economic growth, SU has laid the foundation for cutting-edge research and innovation in multi-disciplinary areas that can impact existing and emerging industries in sustainable development. SU has embraced The "NEW" Decade: New Community, New Economy, and New Energy & Environment as a model for the emerging frontier in sustainability and to further solidify integration of academics, research and experiential learning for alignment with the Louisiana Board of Regents Master Plan (Louisiana Board of Regents, 2009 and 2010) and the Louisiana Science & Technology plan (Louisiana Department of Economic Development, 2009).

The topics of alternative energy solutions and environmental sustainability have gained popularity in higher education with the advent of the “Green Collar” job. Many universities have incorporated aspects of sustainability into their curricula. A small number of degree programs have been initiated in the related field of Renewable Energy. The SU project team is working to create the first program in sustainability at a Historically Black University. Students in many colleges at SU may opt to take classes to fulfill the requirements for a concentration in Sustainability. The concentration is intended to offer students interested in sustainability and related concepts an orientation to the principles of sustainability and their applications and context within their major. Education in sustainability offers inter-disciplinary flexibility reflecting the multi-faceted nature of sustainability. Sustainability potentially draws together all disciplines of the University, especially Engineering, Architecture & Technology, Mathematics, Physical Science, Agricultural Science, Social Science, and Business.

Sustainability Curriculum Creation and Enhancement

A concentration in sustainability has been developed and is currently moving through the university approval process. The first course, titled “Principles of Sustainability” towards the concentration in sustainability was approved through the University’s academic affairs, applicable curriculum committees, and by the University in May 2012. The class was taught each summer since 2012, in conjunction with the study abroad research experience program.

A new rubric has been set up to identify existing courses within each department that can be used as electives to fulfill the requirement for the interdisciplinary Sustainability concentration. All students opting for the concentration are required to take the Principles of Sustainability course. The additional three courses (9 credits) should be selected from a list of approved electives, dependent on major and the department. Elective courses all have approved level of content relevant to concepts of Sustainability. A subset of courses has been pre-evaluated and is delineated by each college. To provide more options, Departments and Programs have been encouraged to develop Sustainability modules for inclusion in elective courses. Students are strongly recommended to obtain academic advisement within their Home Department to select courses which simultaneously meet the student's major curriculum requirements, where possible.

International Engagement

The Sustainability Research Experience (SRE) in China Program has been created and conducted in the summer semesters since 2011. There were 21 students supported by the program in the 2012-13 academic year - almost double the number of participants in the 2010-11 academic year. There are six faculty members, representing six university departments mentoring students as of the summer 2013 term. The program provided SU students and their faculty mentors the opportunity to obtain a global perspective on sustainability research in the areas of sustainable materials, energy, technology, climate change, ecosystem and natural resources. The experience took place over a five-month period with two-month preparation and training workshops on research, results dissemination, and Chinese culture, history and customs. This was followed by students studying at various institutions in China

for a month as part of an effort to increase student and faculty engagement and to establish an international dual degree program in sustainability. While conducting research in China, students also learned about sustainable practices as well as attend cultural events and visit Chinese historical sites. Students were encouraged to explore the differences that existed between the United States and China from the academic, social and business perspectives. Following the return to campus, students, together with their faculty mentors and Chinese colleagues, spent another two months working on research project reports and disseminating their findings through their reports and formal presentations.

Another key success indicator associated with increased academic and research engagement is the number of conferences attended and the number of presentations made by SU students and faculty mentors in participating program departments. Of the 21 students currently participating in the program, seven students (33%) have attended and presented at a professional conference in the past year, an increase by 30% over the previous year.

Southern University has developed a new partnership with the American Council on Education (ACE) to participate in the ACE's Internationalization Laboratory - a prestige invitational learning community that jointly promote and achieve comprehensive internationalization. SU has reviewed the current institutional internationalization activities and developed a set of global learning and engagement goals and objectives. SU has formed an internationalization leadership team suited to accomplishment of the institutional goals. These activities have broadened and deepened SU internationalization.

Research Enhancement and STEM Workforce Development

In respond to the Louisiana Workforce Investment for a Stronger Economy (WISE, Louisiana Board of Regents, 2010), SU has developed a workforce investment and development plan (SU WISE) that appropriately linked the research productivity to positively impact the workforce development. To promote research, scholarly, educational and creative activities, as well as services supporting faculty in their search for business and governmental sector partners, The SU WISE integrates academics, research, and business partnering in a more functional manner with overall objectives that promote greater faculty and student experiential engagement and greater economic development.

The SU WISE includes 1. Center for Smart Composite Materials Modeling and Manufacturing. The vision of this center is to propel SU to a nationally competitive position in smart composite materials research and education, with the goal of creating and advancing knowledge and developing enabling technology in smart composite materials and structures that supports smart composite materials synthesis, characterization, modeling, simulation, processing and manufacturing. 2. Bioenergy Research and Development Platform to address the clean technology and energy needs in Louisiana. Specifically, the research focuses on using alternative sustainable non-food and non-feed feedstocks in Louisiana to develop biofuels. SU has built capacity in bioenergy and biofuel development through a multidisciplinary bioenergy research and development initiative in collaboration with the other state universities, E-fuel Corporation, USDA Forest Service, and

USDA National Institute of Food and Agriculture. 3. Research Opportunity Funds to provide researchers with start-up seed money, travel to granting agencies, organization of workshop and conferences, bridge funds for potential activities/projects that will enhance the research priority areas.

Conclusion

The project outcomes include the advancement of the role of Southern University in aggressively addressing national and global priorities that nurture sustainable materials, energy, technology, and environment to meet the growing demands of economic, business and social sectors in a global marketplace. Sustainability education has strengthened the University and its academic units while enhancing the ability to perform its mission. Students have benefited from exposure to education in sustainability, and are more competent in emerging areas and thus more attractive to potential employers.

Faculty members have benefited from increased interaction fostering opportunities for research and educational collaboration. The establishment of the interdisciplinary sustainability program has 1) resulted in increased enrollment at SU, 2) developed in students traits desirable to employers and graduate programs, 3) enhanced students' knowledge, attitudes, beliefs; and problem-solving skills, 3) allowed SU graduates to be more competitive in corresponding career pathways, and 4) enhances research capacity and production of SU faculty while taking the University to the next level of research by obtaining contracts and producing patents. Significant advantage has achieved with little to no up-front financial obligation to the University. The projects has poised the University to make the larger steps towards transforming education at SU and in the State and the Nation.

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Integrative and Interactive Teaching and Learning about Sustaining the Natural Resources in a Changing Climate

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Abstract

To increase the number of students prepared for employment and/or graduate school in diverse technical fields relevant to global climate change and sustainable natural resources, the Urban Forestry Program at Southern University has implemented the projects to enhance the urban forestry curricular through the integration of global climate change into urban forestry and natural resources education. The project is being accomplished through an ecosystem modeling approach focusing on how climate change affects urban ecosystems and their major components such as forests, wetlands, and water, and how to mitigate the effects thereof. In teaching and learning, we have utilized many state-of-the-art models, such as the urban forest ecosystem service assessment model I-Tree Eco, Educational Global Circulation Model that simulate global climate change, and the water resource model Hydrological Simulation Program – FORTRAN. The project team has created a new course titled “Sustainable Urban Forests in a Changing Climate” and its accompany student workbook/learning resource book. We have implemented an annual climate change and urban ecosystem symposium to enhance student-scientist interaction and scientific exchange. To foster students’ critical thinking, we have established an annual student forum. The integrative and interactive teaching and learning enabled students to gain knowledge about natural resources in a changing climate and to learn strategies to address the complexities of the urban ecosystems, and to better able to apply learned knowledge to related fields for increasing their competitiveness. The projects strengthened education capabilities, enhanced students’ marketability and workforce preparedness, and developed sustainable partnerships.

Keywords: global climate change, ecosystem, modeling approach, natural resource, urban forestry

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Introduction

The multidisciplinary and rapidly evolving nature of climate change causes, consequences, and solutions presents a challenge to us as we seek to educate our students on critical contemporary issues. Students need to learn not only the causes of climate change, but also how to mitigate and adapt to changes already beginning.

Natural resources sustainability and ecosystem benefits are highly dependent on an environment that is changing globally. Previous studies have indicated that the Gulf of Mexico (GoM) coastal region, including Texas, Louisiana, Mississippi, Alabama, and Florida, has, and will, continue to experience increases in temperature, precipitation, and extreme climatic events such as hurricanes in the next 50 years (USGCRP, 2009; IPCC, 2007; Mellilo *et al.*, 2000; Burkett *et al.*, 2001; Ning *et al.*, 2010, 2003, and 1999; Abdollahi *et al.*, 2000). Climate change will bring acceleration in sea level rise and thus storm surge damage. Seventy-one percent of the coastal land in the U.S. between 0 and 3.5 m above mean sea level is in Florida, Texas, Mississippi, Alabama, and thirty-three percent is in Louisiana. Twenty-three percent of Louisiana's land area is in the path of a hurricane. New Orleans is located seaward of the upland edge of this vulnerable zone. The combination of hurricane frequency and strength, geographical position, and the elevation gradient creates a potential impact zone that is the highest anywhere in the US. Vulnerability to ecological catastrophe is likely to increase, as will the broad social consequences, as climate change proceeds.

Our knowledge in understanding climate change is essential if there is to be a solution to the daunting climate change challenge (PCGCC, 2009). Global climate change education and research are urgently needed so that we will possess the knowledge and skills to contribute to both the mitigation and adaptation strategies. The challenge that the climate scientists face is how to communicate the existing knowledge and future research findings to the public. The university professors, school teachers, and other educators, who have the most direct contact with the public in the realm of science education, need to take more immediate ownership of the climate change issue (Gentile, 2010).

Therefore, Southern University has implemented the climate change education projects. Funded by NASA and USDA NIFA, The projects focus on climate change education, research, mitigation, and adaptation in the GoM coastal zone. It is important to focus on this area because of the region's population size and density. Thirty-two percent of the populations in the GoM region live in the coastal zones that comprise twenty-three percent of the region's total land area. Louisiana also has a majority of its population in coastal counties, of which, about thirty-eight percent are minorities, as defined by the U.S. Census Bureau.

Integrating Climate Change Science and Ecosystem Sustainability into the Curriculum

To integrate climate change science and ecosystem sustainability into the curriculum, we have created new courses both at undergraduate and graduate levels, such as Sustainable Natural Resources in a Changing Climate (undergraduate level), Tree Biomechanics (M.S. level), Sustainable Urban Forest Management in Urban - Rural Interface (Ph.D. level), and Urban Phytoremediation (Ph.D. level). By using the best

available teaching tools and the most appropriate pedagogical methods, these newly created courses have enabled students to tackle complex problems. The integration of climate change, water resources, and sustainability, issues of critical importance to the world, to the curricular at SU is a significant effort in enhancing the curriculum both at undergraduate and graduate levels. The enhanced curricula have enabled students to be educated with most current national and international initiatives, and have prepared students for the workforce in a changing world.

Interactive Ecosystem Modeling

We use innovative approaches in course delivery through the use of Web-based interactive teaching tools, such as computer models, 3D and virtual learning, and e-learning to promote students' learning interest, imagination, and creativity. For example, for the newly created Sustainable Urban Forests in a Changing Climate course, we collaborated with Columbia University to bring the most up-to-date Educational Global Circulation Model (EdGCM), into teaching and learning. The model stimulated students' learning desire and enhanced their understanding through vibrant visual simulation and climate change predictions under different scenarios.

Using SU campus and the surrounding communities in Scotlandville and city of Baron Rouge - where students live, study, and play - as a teaching and learning laboratory, we collaborated with the USDA Forest Service Northern Research Station and Southern Research Station in teaching students how to use i-Tree Eco model to quantify urban forest ecosystem services such as CO₂ sequestration, carbon storage, building energy saving, and pollution removal. The modeling results demonstrated to students how urban forests can improve the quality of their lives. The students therefore become more eager to learn the subject matter and more determined to be the future managers of the urban forests in the nation.

To improve teaching and learning about water resources, we have organized faculty and student training workshops on Hydrological Simulation Program – FORTRAN (HSPF) in collaboration with Louisiana State University. Participants learned the utility of HSPF, modeling results of climate and land-use change impact on water resources, and water resource management strategies.

Experiential Learning

To combine classroom lectures with experiential learning, we take students to field trips to convey scientific information in a more interesting and appealing way. For example, when teaching sea level rise and its effects on coastal wetlands and forests, we took students to the coastal barrier islands in collaboration with Dr. R.E. Turner of Louisiana State University and Dr. Nancy Rabalais of Louisiana University for Marine Consortium. The field trips provide hands-on learning opportunities for students on ecological issues, such as identification and characterization of Gulf habitats affected by sea level rise, wetland and coastal forest conservation and restoration, etc. The field studies challenged students to envision the consequences of sea level rise at specific places over various time periods thereby addressed the chronic and catastrophic aspects and the need for developing management tools. The participating students became the catalyzing agents of change, attract others, for adaptation in the classroom and afterwards.

Each summer we send a group of students to study at our partners' research sites such as USDA Forest Service, North Carolina State University, East Carolina University, etc. The experiential learning opportunities provide students with a strengthened awareness of the inter-relationships among natural resources and the ecosystems, allow students to interact with the scientists, develop relationships, and prepare for future employment.

Foster Critical Thinking Skills and Communication Skills

To foster critical thinking skills, we demand students to conduct literature review of the subject matter and write papers to critic the literatures that they reviewed. We have created first time at SU the end of semester Student Ecosystem Forum that lead to student engagement in current topics, scientific debates, and professional discussion. The learning outcome surpassed what a final exam could only achieve.

To enhance scientific exchange and improve teaching and learning, we implemented an annual climate change and ecosystem sustainability symposium to introduce most current science and to bring together nationally and internationally renowned research leaders and educators. The symposium increased the level of scientific competency of faculty and students and served as a vehicle for partnership building and networking.

To enhance oral communication skills, we host training workshop on How to Communicate Science in a Story-Telling Style in collaboration with Randy Olson, a biologist and an educational film maker. When communicating science to the public, the most common and most difficult question that the communicators face is "why should we care"? The workshop taught students how to construct scientific topics into concise and powerful stories that even the disconnected audiences can be made to care about and take an interest in the topics. An advantage of the workshop is that students learn about the culture of science, while learning how to be interlocutors for positive societal learning. The students take ownership of the scientific knowledge on their own terms and become a window into the community.

Conclusion

The integrative and interactive teaching and learning enabled students to gain knowledge about natural resources in a changing climate and to learn strategies to address the complexities of the urban ecosystems, and to better able to apply learned knowledge to related fields for increasing their competitiveness. The projects strengthened education capabilities, enhanced students' marketability and workforce preparedness, and developed sustainable partnerships. The project team have enhanced at least eight existing courses with most up-to-date materials, and developed 4 new courses. Products also include internships, short courses, field trips, workshops, symposia, student forums, seminars, conference presentations, journal publications, and K-12 outreach, etc. The project team provided valuable information on climate change impacts on ecosystems and mitigation strategies to educators, students, and community members; and benefited the stakeholders and the society in economic, environmental, and social aspects.

The project team contributed to GoM regional recovery and post hurricane and storm restoration. The projects led to a multiple research outputs from participating faculty and students. The projects also increased awareness and competence on campus. The projects fostered collaborations across disciplines and strengthen the ties with our partners. The projects helped the University developing competitive education and research programs in climate change. The enhanced programs attracted more students into careers in STEM related fields.



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How to Visually Analyze Verbal and Nonverbal Skills of Students' Oral Presentation

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Abstract

The purpose of this study was to facilitate students their skills concerning oral presentation, a critical competency in any professional fields, including business and engineering. Although the importance of this skill is apparent, seldom studies explore the extent to which it can be enhanced by the intervention of technological assistance. In this study, a methodology was proposed to help students acquire oral presentation skills in an effective way. Through reviewing relevant literature, this study monitored various criteria to evaluate a student's presentation skill, including verbal and nonverbal clues. These clues were visually displayed and analyzed by a combination of technological assistance, namely ANVIL. To validate whether this solution was feasible and plausible, four undergraduate students were recruited as the participants of this pilot study. The data were gathered during the experimental period, which lasts 2 weeks. Through an analysis of the collected data, it was revealed that the participants have significantly stimulated their intentions of giving an oral presentation. As well, their verbal and nonverbal skills concerning oral presentation were improved. It is proposed that students' oral presentation skills could be effectively improved as their verbal and nonverbal clues can be visually analyzed and evaluated.

Keywords: Oral presentation, Motion detection, Speech analysis, Educational technology

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Introduction

Regardless which career is engaged, it is impossible to avoid communicating with others. Therefore, communicating is a critical ability in current work field (Kakepoto, Habil, Omar & Said, 2012). Because communication is important, many organizations have made clear requirements asking their employers to satisfy the criteria in order to get promotion. For example, it is expected for operational workers to have the ability to clearly tell to others. This is regarded as the basic ability of communication. For intermediate workers, it is expected to have further ability to express ideas in words. As for manager level above executives, communication ability focuses mainly on the power of persuasion.

Communication ability can be divided into several styles. One of the styles that is important but generally been ignored is oral presentation. Oral presentation skills are an important capability for undergraduate students in modern society, even for engineering students. Students usually have many opportunities for them to give presentations as they entering University. Although giving a presentation is seen as a way of enhancing students' oral communication skills, it does not mean students' ability would definitely increase. As usual, some students think that giving a presentation is a good opportunity to practice their skills, others might not. This situation is even obvious in engineering students. Engineering education focuses mainly on knowledge and skills of implementation. Generally, engineering students pay less attention to learn how to communicate with others. In fact, most engineering students even consider that oral presentation skills are not important, which is in conflict with the notion that undergraduates are prepared well skills to present their idea. Because fluent spoken in workplace is one of the survival skills that employees should have (Kinnick & Parton, 2005).

Although the importance of oral presentation has been widely acknowledged, there is a gap between employers and undergraduate students regarding how well of the students should be. From employers' point of view, oral presentation is a skill that should have been well taught in schools. However, instructors usually emphasize the proficiency that undergraduate students major, rather than the training of oral presentation (Cronin & Glen, 1991; Schneider & Andre, 2005). In such case, undergraduate students might not have sufficient opportunities to express their ideas, to practice their oral presentation skills, and then to reach a mastery level. As mentioned above, this problem is serious for engineering students because students generally consider that the techniques they are learning is the most important, whereas expressing their ideas is an easy and trifling matter. Unfortunately, many teachers in engineering field have the same belief. As a result, engineering students generally receive little feedbacks and guidance as they giving an oral presentation in classes.

In this study we were attempted to propose a solution for instructors to quickly and effectively assess engineering students' performance of oral presentation. It is expected that having a useful solution can help instructors lessen burdens as they evaluate students' achievements. Briefly speaking, the assessment of oral presentation is the first step for engineering students to improve their skills based on the results. However, oral presentation has its proficiency. Many indicators used to evaluate a presenter's competencies require an assessor's experience and knowledge so that the presenter can receive constructive feedback and comments. This study would like to

propose a solution for instructors to visually diagnose students' oral presentation achievement. Accordingly, the aim of study includes proposing a solution to sustain visual diagnosis, evaluating the feasibility and plausibility of the solution and suggesting the implications for engineering education.

Literature review

Communication is the basic skills necessary to compete in modern society. Effective communication serves as the lubricant in interpersonal interaction. In work field effective communication means the power of persuasion. This is especially important because any innovative idea is supposed to have financial supporters. Before the idea turning into a product, the proposer should have the competency to convince the sponsors that it is a potential product. Engineers are expected to have profound expertise to design and create industrial products. In this regard, most engineers are competent in the jobs they are in charge. However, many employers consider the ability that most engineering students do not well equip as they are graduated is oral presentation (Kennedy, 2007; Russ, 2009).

This problem can be serious because superior managers do not have sufficient time and attention to comprehend the entire techniques needed to establish an industrial product. Also, superior managers do not have sufficient expertise to imagine the vision of an advanced application. In this regard, an engineer with well oral presentation skill might be especially helpful for the managers to better understand the potential in a short time. Considering that current products have shorter life cycle, corporations need to make decision more accurately and quickly. Accordingly, it is expected that engineers in current work field should have domain knowledge and the ability to present their ideas.

So far, it has been recognized that oral presentation is a critical skills, not only for business but also for engineering. However, engineering students have seldom educated to effectively and correctly give an oral presentation. This is considered to be the reason why there is a gap between what employees expect engineering students should have taught and what they have really learnt. Before we can propose a solution to deal with this problem, a question regarding what constitute a good oral presentation should be addressed.

TED is a web-based video show, which providing numerous speech across various fields. Each talk has at least 3 minutes to one hour. Usually the invited speaker gives many insightful and persuasive points of view in the talk. TED is famous because the invited speaker will be taught how to present their ideas in order to ensure consistent high penetrating power and thought-provoking styles. This training prevents TED from ruining by poor skills of the speaker itself. From TED's case it is obvious that an oral presentation is an ability that can be taught.

Briefly speaking, oral presentation is divided into the verbal language and nonverbal language (Murphy, Hildebrandt, & Thomas, 1997; Ober, 2004; Roebuck & McKenney, 2006). Verbal language (spoken) skill includes the pronunciation, the electing of grammar and glossary, the intonation, the acoustic fidelity, and volume as well as the speed. What the non-verbal language (non-spoken) skill refers to an item of eye contacts, laugher, anger, happy and other facial expressions, gestures as well as

body languages. In addition, we must dense pay attention to the audience to respond that adjusts the volume promptly, the stance, and content expressed that to attract its interest and attention. In addition, the presenters need to focus their attention to the responses from audience in order to timely adjust their volume, gesture, and expression to attract the audience's interest and attention.

To better understand an oral presentation, we need to comprehend both the verbal and non-verbal signals in any communication. This helps to build understanding with other people, develop relationships and reduce conflict.

Difficulties can arise:

- when the verbal and non-verbal signals do not seem to match—eg if you nod but don't agree or understand
- if the non-verbal signals are difficult to interpret
- if the words used are unfamiliar.

A presenter needs to seek feedback and combine verbal and non-verbal cues to build shared understanding.

Based on the statements mentioned above, this study considers a qualified presentation contains two main features, namely verbal and non-verbal skills. Verbal skill refers to spoken language, whereas non-verbal skill means body language. In business school there are many courses for students to practice their oral presentation skills. This is imaginable because business school students are expected to have well trained skill in expressing themselves. Engineering students, in this regard, have relatively less time and frequency to practice this skill, not to mention achieving a mastery level.

Based on Vygotsky's (1980) perspective, ZPD (Zone of Proximal Development) theory suggests that students would learn better when there are more skilled counterparts to emulate. Vygotsky's ZPD emphasizes his belief that learning is, fundamentally, a socially mediated activity. Vygotsky's scaffolding is assistance of some kind that enables students to complete tasks they cannot complete independently. More specific, students cannot do independently, but can do when helped by more competent individuals. It is the process of providing different levels of support, guidance, or direction during the course of an activity.

Taken together, it is believes engineering students can learn oral presentation skills in a more effective way, as long as an appropriate support is available. In this study, we consider that a visual analysis of the critical elements that constitute a qualified presentation might be a solution. According to previous statements, engineering students need to take care both verbal and non-verbal skills in a presentation. That means an engineering student has to practice many critical elements such as voice, speed, gesture, position, and content in a whole. This can be a difficult practice especially for engineering student. The relatively few chances for them to practice these skills especially highlights the importance of giving suggestive feedbacks as they finish an oral presentation.

In this regard, suggesting a feasible and plausible solution for engineering students to effectively receive feedbacks regarding their oral presentation is significant. Visual analysis usually reveals much information for instructors and students because they can easily compare the achievement of the good and bad. As the comparison is easy,

students might be able to quickly choose whom they can emulate, in order to improve their own skills based on the stereotype. In this regard, this notion is in line with Vygotsky's perspective.

Pilot study

In this pilot study, four engineering students were recruited. Before this pilot study started, ANVIL was introduced to the participants. ANVIL is open source software, which is developed by Kipp (2001). Originally, ANVIL was created to annotate video clips for latter analysis. This software has the feature to add tracks for users to label meaningful annotations. ANVIL has many built-in functions that are effective for analysis. For example, it provides correlation analysis for users to make clear a relation between different annotations.

Accordingly, the participants were told that they would be recorded as they were giving an oral presentation. Because each participant had a presentation video, they could use ANVIL to analyze their achievements based on the criteria given by the instructor. Of course, these criteria were in accordance with the critical elements of a good oral presentation. As previously stated, ANVIL allows users to add tracks for meaningful annotations. Thus, the tracks had been standardized by the researchers in accordance with the criteria. In this pilot study we used three tracks for participants to annotate nonverbal language, such as eye contact, movement, and gesture. All participants could easily observe the annotated labels on the tracks. In order to have standardized tracks in this pilot study, the participants were given a temple that the three tracks had been predefined so that the participants were not encouraged to add any track in their attempts.

Discussion and conclusion

In this pilot study, we invited four engineering students in order to using a video annotation tool that allows visual analysis after they had given oral presentations. The purpose of this study was to first test the feasibility of using video annotation tool in oral presentation skill training. It is supposed to be useful because the way of visual analysis is intuitive and friendly so that it could be interesting to draw the participants' attention. Because the relative few chances for engineering students to practice their presentation skills, an effective way for instructors and students to stimulate the learning achievement might be helpful. Not only the feasibility of the solution proposed in this study, but also its plausibility is the aim of this pilot study.

ANVIL was chosen as the video annotation tool because it complies with the features that we suggested in this pilot study. As long as predefined tracks are given to students, they could easily follow the criteria of good oral presentation to label annotations. This feature is especially useful for this pilot study because it allows the participants to review his or others' presentation videos. The purpose behind the action of annotating students' oral presentation videos is to stimulate their motivation to pay more attention to what constitute a good presentation. In accordance with Vygotsky's perspective, when a student observes a more skilled counterpart, he will be more likely to be enhanced because he can emulate the more skilled one. ANVIL in this regard provides the participants more visible results for them to compare who has better presentation skills. Because all the annotated labels together with the

presentation videos were visually displayed in computer screens, the participants would learn how a good presenter express his idea with non-verbal language.

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***Research on Environmental Education Management Combined with Factory
Touring Based on Field Theory—Sonispa Tourism Factory in Taiwan***

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Abstract

The promotion of factory touring in our country has exactly reached the tenth year, during which the traders engaged in this industry and the counseling departments have started to reflect upon future development. The Environmental Education Act stipulates that the teachers and students in schools below senior high education are supposed to participate in environmental education for more than four hours per year, and the county and city governments one after another encourage schools to hold excursions in collaboration with tourism factories in recognition to local culture and industrial knowledge. A French scholar, Bourdieu, thinks that social world is a cluster of many fields, and the agents make use of dissimilar types of capitals to form habitus for the achievement of targets. Our research applies the prospect of Field Theory and Qualitative Method to the field of school and tourism factory, to investigate into the process of how the elementary school teachers realize environmental education with the tourism factory, and to understand the intention of the agents and how each type of capital is acquired and transformed. The discovery of this research includes:

1. Sonispa Tourism Factory integrates the salt culture into local features and builds a field of environmental education which combines entertainment with education. It not only transforms the cultural capitals into an attraction to the tourists, but also brings economic capitals, social capitals, and symbolic capitals for itself.
2. The process of promoting environmental education in the school field becomes the cultural capital for the elementary school teachers, and influences the elementary school teacher's intention of implementing environmental education and the effect.
3. The student families which are lacking in capitals influence the elementary school teacher's intention of holding environmental educative excursions.
4. The elementary school teachers regard Sonispa Tourism Factory as the social capital of implementing environmental education, transform it into the student's cultural capital through teaching activities, and gain cultural and symbolic capital personally.
5. The tourism factory can regard the school as the social capital and increases its economic capital and symbolic capital.

We ultimately raise suggestions on account of the research consequence for the traders engaged in tourism factory industry, elementary school teachers and the related departments, and expect to carry forward the notion of tourism factory and sustainable development.

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Introduction

I. Research Background and Motive

In the year 2003, the Ministry of Economic Affairs, R.O.C. proclaimed the tourism factory counseling project to give assistance to engaged traders for industry transition, making use of the unoccupied spaces and introducing factory touring and recreational factors, and made a twist on the destiny of the declining industry. Owing to the popularization of two-day weekend, as well as the coming of the era of knowledge economy and the rapid transmission of information, the citizens' way of and attitude toward traveling change (Ying-Wen Lin, 2012). Many of them list factory touring in their itinerary, making factory touring an arising mode of traveling in the country. It has been ten years since the development of tourism factory in the country. A scholar, Wen-Cheng Shao, advises the engaged traders to attach importance to the issue of environmental conservation through the evaluation progress of tourism factories. An engaged trader, Ming-Wei Jiang (2013), also suggests people of the same industry to fulfill social duty, such as promoting living aesthetics, humanistic education, and environmental education, while pursuing output value.

We researchers presently work as teachers at a public elementary school in Tainan City. The school arranges at least one excursion for the students every year. The mayor of Tainan City, Qing-De Lai, thinks that the tourism factories provide educational functions. He ordered in the city council of 2013 that the schools should include factory touring into the teaching and learning route outside the school, and let factory touring become another sort of practical learning activity for the students (Bureau of Education, Tainan City Government, 2013). Bourdieu's Field Theory puts emphasis on how the agents use *habitas* in some kind of situation to strive for and transform capitals to maintain or to raise their position in the field. We researchers explore the elementary school teachers' process of implementing environmental education in collaboration with the tourism factory in view of their needs for teaching, based on the prospect of Field Theory. Currently, there are few schools that hold excursions to the tourism factory for environmental education, and there are not any precedent researches conducted by other scholars on this research theme. We expect to find out the teachers and engaged factory touring traders' practical logic in their field, to submit advise to the engaged traders and schools, to raise the teachers' volition to implement excursion to the tourism factory and reach the instruction objective effectively, and to spread the notion of tourism factory and sustainable development.

II. Aim of Research

1. To understand the connotation of capital, *habitas*, and practice in Bourdieu's Field Theory
2. To discuss the role of the tourism factory in environmental education
3. To probe into the elementary school teachers' realization process of implementing environmental education in collaboration with the tourism factory

Reference Investigation

I. Field Theory

The existence of all the fields is defined by the agents in action within. Agents make use of capitals to compete or exchange, in order to maintain and consolidate their interests or position.

Habitus: The word habitus originates from Latin, and does not correspond to an united translated term by the Chinese scholars. The definition of this word contains existence mentality, hobby, temperament, accustomed habit, and so on. Practice: It refers to the specified behavior performed by an individual or a group with habitus and in possession of capital, according to the game rule in a certain field (Jia-Wei Gao, 2007). The practice referred in this research means how the teachers and students from different status and background use their innate habitus and capital in the field during the environmental educative excursion to Sonispa Tourism Factory and compose adequate teaching activities. Symbolic Violence and Cultural Reproduction

II. Tourism Factory

1. Origination of Tourism Factory

The tourism factory stems from Ironbridge Gorge in England. After World War Two, the place was almost totally covered in ruins. In the 1960s, England started the protection of cultural heritage. In the 1980s, the concept of touring was drawn into the renovation of old factories, turning them into museums and centers of craft with professional commentators, and rescuing their destiny from declination.

2. Definition of Tourism Factory

At present, there has not been a decided academic definition of “tourism factory” given by domestic and international scholars yet. In 2013, Industrial Development Bureau, Ministry of Economic Affairs defined tourism factory in the document of tourism factory counseling key points as a factory with the value of touring education or industrial culture, actually devoted to producing and processing products that fit the MIT (made in Taiwan) spirit, and allowing the visitors to view the product, making procedure, or the factory building.

3. Current Situation of the Development of Tourism Factory in Taiwan

Since Ministry of Economic Affairs, R.O.C. began to promote factory touring, the amount of tourism factories, number of visitors, and economic benefits have ascended continuously. Following the policy of fixation to world undulation, tourism factories of excellence and tourism factories of international spotlight are elected annually. The county and city governments one after another formulate promotional plans of factory touring, which link with the educational system and help to facilitate the cooperation between elementary and junior high school excursions and tourism factories.

Research Method

I. Research Structure

Our research is conducted on the basis of Bourdieu's Field Theory. The specified fields are Tainan Sonispa Tourism Factory and ShunAn Elementary School (pseudonym), and the agents are the elementary school teachers and traders of the tourism factory. This research delves into how the agents in the field make use of the transformation of differing capitals and the formation of habitas to reach the target, as diagram 3-1 indicates:

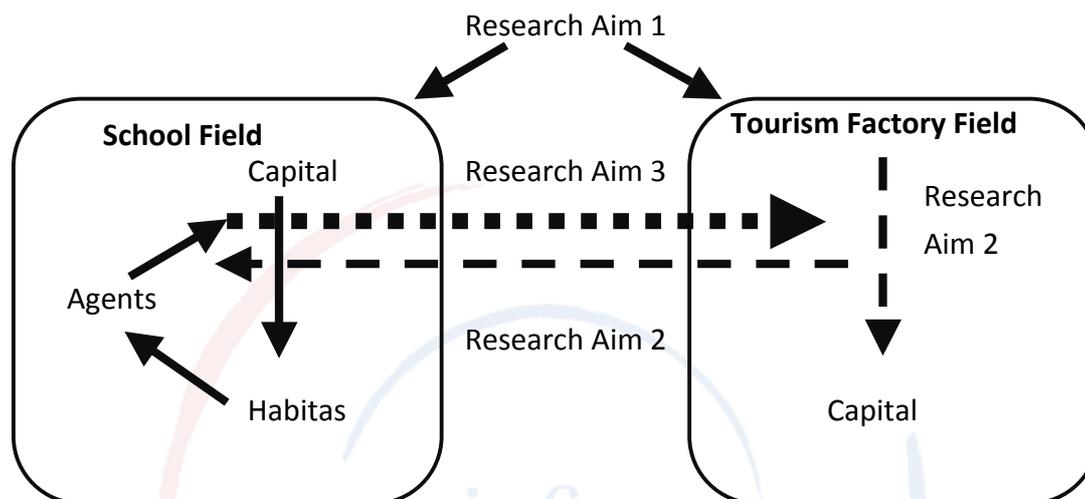


Diagram 3-1: graph of research structure, data source: self-drawn

II. Research Procedure

We discovered the question based on the cited materials, inquire into the research field on the spot, determined the direction of research topic and drafted the research plan, kept on collecting data concerned with tourism factory, environmental education and Field Theory, entered the research field to observe how the agents make use of capitals to implement teaching activities of environmental education in the tourism factory, gathered data through interviews, processed the data into analysis and explanation, and finally came up with the research conclusion and advise.

III. Application of Research Method

Our research adopts the qualitative research method. The details are as follows:

1. Depth Interview

Interviewing is the most effective way of collecting data (Pin-Hua Chen). This research adopts semi-structured interview, and the objects of interview are the traders of Sonispa Tourism Factory and the teachers that instruct the lecture. We prepared the outline of interview and pen recorders beforehand, and adjusted the way of asking and sequential order of questions according to the real situation. The interviewees' answer takes up the main part of the interview.

2. Documentary Analysis

The scope of documents used in this research includes net information related to the specified field, the teachers' brief plan of teaching activities, students' learning feedbacks, and so on. We focus on making static and comparative analysis to understand and figure out the causal relationship among the field, capital, and practice in this research.

3. Observational Method

We entered the field and recorded the complete progress through observation to get close to the real situation of how the elementary teachers implement environmental education in the tourism factory, and confirmed the result of observation with the interview content and data information.

IV. Research Object

1. Field

A. Sonispa Tourism Factory

Sonispa Tourism Factory is located in Annan District, Tainan City. The parent company of the factory is Hwang Sun Enterprise. Found in 1983, the company incidentally began to manufacture beauty apparatuses. To cope with the stream of enterprise transformation and the flourishing of cultural and creative industry, Hwang Sun built the Sonispa Tourism Factory. In 2010, Hwang Sun got the concession of running in the municipal heritage "Annan Branch of Tainan Substation of Former Taiwanese Governor General's Office," and obtained the operating concession in several historical buildings and municipal heritages successively, creating the "Xi-You Salt Tour" which contains scenes like Sio House, Shui Yi Port, Jing Bo Villa, Salt Lohas Village, and Tile Tray Salt Pan in Jing Zi Jiao (Yi-Ting Huang, 2013).

B. ShunAn Elementary School

ShunAn Elementary School is situated in Annan District, Tainan City. The socioeconomic status of the student parents is generally not high. Students from lower-middle class families and from the social vulnerable groups account for 25% of the students, and the rate rises year by year. Since 1999, the school started to promote environmental education. In 2000, the school became the chief school of environmental education and received the optimal credits in the citywide evaluation of environmental education for two consecutive years.

2. Agents

A. Sonispa Tourism Factory, Director of Creative Marketing, Miss Yang

Miss Yang has been the director of creative marketing in the Hwang Sun Enterprise for more than three years. Xi-You Salt Tour and Sonispa Tourism Factory are both carried out in her term of service, and therefore she is quite familiar with the operation of these two places.

B. ShunAn Elementary School, Miss C

Miss C graduated from the graduate school of mathematics education of the teachers' college. She has taught in the elementary school for eleven years, and had assumed

the post of energy education seeded teacher.

C. ShunAn Elementary School, Mr. S

Mr. S graduated from the graduate school of chemistry of the university. He has taught in the elementary school for fourteen years, and had assumed the post of intramural section chief of information technology and energy education seeded teacher.

V. Data Compilation and Analysis

Our research adopts the qualitative research method and attaches to the most real, accurate, complete data by means of observation on the spot, interviewing and gathering documents. We apply triangulation to data analysis to strengthen the interrelation among data and to examine the credibility of them. We use multiple ways to collect data, including interview information, diaries of lecture instruction, reflective notes, learning sheets and students' works, and use induction and cross-reference to reduce the possibility of error in self-deduction and to confirm the credibility of the data. To present the real research progress, we asked the interview objects to verify the first draft of the interview record and the thesis written down, so that the data reliability can be guaranteed.

Research Result

I. Meeting with Salt—Capitals of Xi-You Salt Tour

During the time of transformation of the Sonispa Tourism Factory, the parent company Hwang Sun Enterprise pondered over how to transform from conventional industry to tourism industry. The company rented the site of the municipal heritage "Annan Branch of Tainan Substation of Former Taiwanese Governor General's Office," and renamed it as Sio House. The exterior appearance of the building features both Japanese and western style, and is well-preserved up to now. The exuberant cultural capitals of "salt" happen to be related with Sonispa Tourism Factory, where used to be the location of Old Anping Saltern. Salt can be associated with the exfoliator and the application to beauty apparatuses. Using salt as a theme and launching cultural and creative products connected with salt are favored by the visitors. Hwang Sun later took over the operating concession of Canal Museum, Tai Yan Japanese Dormitory, Qi Gu Salt Pan, and combined these sites with Sonispa Tourism Museum into the "Xi-You Salt Tour."

1. Environmental Education Capitals of Xi-You Salt Tour

Each site of the Xi-You Salt Tour has its historical background and architectural feature, and therefore Hwang Sun Enterprise hopes that the visitors can experience the tour with an attitude and a way as if listening to stories. Each district sells the original cultural and creative products of the company, and the quantity of the items varies with the size of the space.

2. Capital Conversion

Sonispa Tourism Factory, coming from the Old Anping Saltern, derived the connection to the cosmetology use of salt from its origin, and later turned the historical buildings of salt into a place for tourism, production broadcast, and

education. By the combination of cultural capital and creativity, it creates various kinds of cultural and creative products of salt for the visitors, and gains the economic capital of recognition. Meanwhile, because of the successful business operation, the prestige of the company is raised, contributing to the incrementation of orders for goods and the attraction to the manufacturing, government, academic and research departments to inspect, and brings about the symbolic capital and social capital.

II. Habitas of the Elementary Teachers' Implementation of Environmental Education

1. Capitals for the Elementary Teachers to Implement Environmental Education

Since there are not any lessons of environmental education in the cultivating stage of qualified teachers, Miss C and Mr. S only got access to the cultural capital of environmental education during their service in school. In common times, Miss C is more involved in the work of environmental education. She gets the social capital and cultural capital from the colleagues, people in the community and experts during execution, and brings herself the symbolic capital and the dynamism to implement environmental education after attending the contest with the attainments and earning the national award of advanced excellence.

2. Factors that Influence the Elementary Teachers' Implementation of Environmental Educative Excursion

The two teachers, especially Mr. S, had not held environmental educative excursions for many times. The main reasons are as follows:

A. Budget

The rate of students from the social vulnerable groups in ShunAn Elementary School is generally high, which means that charging extra fees will be a burden to the parents.

B. Time

If the excursion takes place in the study hour of weekdays, the main classroom teachers would have to adjust the class schedule, and have to spare the time for extra courses of excursion. If it takes place in the holiday, it is not supposed to be made compulsory for the students to attend, and the teachers might have their family business and private affairs to deal with.

C. Transportation and Students' Security

Whether it is convenient to get to the destination by transportation influences the itinerary plan, as well as the matter of budget and time. If the bicycle is used as the vehicle, then there have to be the manual support and cooperation from parents to ensure the security. However, it will be difficult to the classes in which students are generally from families of lower social and economic status.

D. Related Affairs

There are many affairs that need to be done before and after an excursion, such as site survey, consultation with the traders, design and arrangement of the lecture, and compilation of the attainment data, which are a big burden to the teachers.

3. Elementary School Teachers' Capital Use of the Implementation of Environmental Educative Excursion

Miss C thinks that kids can learn more stuff and more effectively through self-experience. She tries to seize the chance to hold an excursion whenever the economic capital does not count as a problem, like in cooperation with school project activity, colleague related project or teaching plan, and cultural activity. The social capital established in ordinary days contributes to the opportunity for the teachers to teach in the excursion.

III. The Elementary Teachers' Realizing Progress of Entering the Field and Implementation of Environmental Education

1. The Elementary Teachers' Motives to Enter the Field of Tourism Factory

The two teachers both generated the idea from the textbook content and looked forward to offering more cultural capitals to the students. Mr. S associated the current situation of economic development with Sonispa Tourism Factory, and discovered that Sonispa Tourism Factory innovates the meaning of salt. Miss C derived from the featured industries of the past and found out that Sonispa Tourism Factory passes on the culture of salt. Sonispa Tourism Factory and the school are both located in Annan District. With this community resource, the two teachers expected to extend the students' learning experience, to let them know how the enterprises take advantage of available resources and environment in combination of innovated culture under global competition, and how to take the environmental sustainability into account while pursuing economic development.

2. How to Use the Field of Environmental Educative Excursion

Habitus decides the behavior mode of how the two teachers plan for and execute this environmental educative excursion. The two teachers' social capitals accumulated in ShunAn Elementary School help them resolve the problem of budget with the assistance rendered by the administration staff in school, and let the agents enter the field to implement environmental education.

A. Choice of Executing Field

Field is a space of power competition. Due to the limitation on time and budget, the itinerary to Tile Tray Salt Pan in Jing Zi Jiao and Jing Bo Villa, where are of a long distance from the school and overlapped with other cultural capitals, was deleted from the Xi-You Salt Tour. On the other hand, there are plenty of fields concerning salt in the whole Tainan area, but all require tickets and fees of guidance. By contrast, all the spots in Xi-You Salt Tour are free of charge, and have more hands-on activities and cultural and creative products.

B. Symbolic Violence and Cultural Reproduction

Bourdieu thinks all kinds of teaching activities belong to symbolic violence. To prevent the students' attention from getting distracted in the learning field, the two teachers use scaffolding instruction and lecture materials designed elaborately for the students to gain more cultural capitals and to reach the lecture target set beforehand.

IV. Reflection on Teaching Activities and Learning Effects

1. Students' Feedbacks

After the activities, the two teachers took back satisfaction questionnaires, learning sheets or booklets, and reviews to know the effect of this excursion. The result suggests that children think that the content of this excursion lecture is interesting and is helpful to learning and the understanding of hometown features and culture.

2. Agents' Aspect

Mr. S thinks that the six-grade students did not know much about the tourism factory and cultural creativity at first before the excursion. After the preconstruction in class and verification on the site, they roughly got the concept. Miss C thinks that students can learn about the related history stories and know of the building features. Compared with the aimless tour with the parents, the peers can share their viewpoints with each other, and it is more likely to evoke responses among them since they are of similar age. In addition, the teachers can suggest the focus of visit in advance, so that the students will not miss the point.

The two teachers both agree that the scenes of this excursion form an extremely good field for environmental education. The field provides entrance of free charge and guide service, and it is the main reason why they chose to visit the scenes of Xi-You Salt Tour. The teachers gained the cultural capitals such as knowledge of salt and the salt culture in Tainan through the teaching process, and even converted acquired cultural capitals into other types of cultural capitals, like instructing students to make salt soaps with the solar energy pan. The students also came up the idea of using natural resources by adding tong blossoms and jasmine flowers into the salt soap.

Conclusion and Suggestion

I. Conclusion

1. Sonispa Tourism Factory's Use of Capitals

Sonispa Tourism Factory at first found out the exuberant salt culture, history and historical buildings and blended them with local industries featuring salt into a tour that takes teaching and entertainment into account and constructs a field for narrating the story of salt. Then the factory put the cultural capitals stated above into the creation elements of souvenirs, and made out various items of cultural and creative products. The visitors can place themselves in the atmosphere of story, and admire the birthday color salt and the salt bloom stamps which represent their symbolic capital. They not only acquire cultural capitals, and also become the social capital and the best promoting power of Xi-You Salt Tour. Hwang Sun Enterprise accumulates copious cultural capitals for itself, and on the top of that brings about economic capitals, social capitals and symbolic capitals.

2. Habitas of the Elementary Teachers' Implementation of Environmental Education

The two agents possess the cultural capitals to implement environmental education from the related software and hardware equipment and the opportunity offered by their school. On the other hand, in the process of education, they acquired the social capitals from the colleagues in school, extramural community, and the experts, which will provide more capitals for environmental education in days to come.

Teachers' volition to execute environmental educative excursions gets influenced by factors like budget, time, transportation, students' security and diverse derivative affairs. That the rate of families in lack of economic capitals is high would particularly become an obstruction.

3. The Agents' Process of Entering the Field and Implementing Environmental Education

A. Motive

In the progress of teaching with prescribed textbooks, the two teachers hoped to use local cultural capitals to broaden students' learning horizon, and discovered that the students were exceedingly unfamiliar with these unique local cultural capitals.

B. Use of Field

a. Selecting the Field

The field without charge comes in the first place in consideration. The distance to destination and the quantity of cultural capitals are also included in the factors of evaluation.

b. Symbolic Violence and Cultural Reproduction

The teachers collected data and inspected the site beforehand. They prepared lecture activities consisting of elaborately-designed teaching materials and learning sheets according to students' learning experience and environmental education standard to instruct the learning direction and focus for the students.

c. Reflection on the Activities and Learning Effects

According to the opinion inquiry, students show high satisfaction to the site, lecture content and activity arrangement of this excursion, especially to the fields with plenty of hand-on activities.

II. Suggestion

According to the result of and the reflection on research attainment, we propose suggestions as follows:

1. Suggestions to Hwang Sun Enterprise

A. Creating Individuality

Since the homophily among some of the scenes from Xi-You Salt Tour is overly high and the cultural and creative products sold in each scene are pretty much the same, visitors are inclined to feel less freshness when they arrive at the second scene.

B. Customized Service

From the feedbacks of the students, we discover that the birthday color salt of 366 colors, the salt bloom stamps of 366 days, and the DIY salt soap are the most popular cultural and creative products. Since customized products represent personal symbolic capital, it is advisable to develop products at lower prices and souvenirs or hand-on consuming lectures that are affordable with regard to students' economic capital.

C. Notion of Green Consumption

Hwang Sun Enterprise should give guidance to the visitors of how to protect the earth, like encouraging the visitors to bring their own shopping bag or reducing product

packages. Decreasing the hazard to the environment is also a responsibility for the company.

D. DIY and Hand-On Lectures

Students prefer to learn by doing. Fields with multiple hand-on activities are prone to receive higher satisfaction from the students. Shui Yi Port does not have any hand-on activities, and therefore does not receive students' favor and willingness to revisit even though the guide instruction is lively and vivid.

E. Regarding Schools as the Social Capital

Xi-You Salt Tour comprises the Sonispa Tourism Factory which is unique compared to other scenery in Taiwan and the advantaged salt culture, and is supposed to be an abundant attraction to the schools from other cities and counties. Hwang Sun Enterprise can take the initiative to offer teaching plans and learning sheets to alleviate teachers' burden of lecture design and to raise their volition to visit. The enterprise can even hold training activities for teachers and explains the cultural capitals that could be provided to the teachers.

F. Constructing the Center of Environmental Education

Ministry of Education selects the teaching fields and lectures of qualified government institutions and civil bodies to construct the center of environmental education, and offers subsidies to cover some of the expenditure for the students to experience excursions that differ from the past.

2. Suggestions to Teachers in School

A. Agents Should Offer the Operating Mode of Teaching in Collaboration with the Tourism Factory. Our research gives a complete explication of the process of how two teachers implement environmental education in the tourism factory. The teaching modes which include teaching from the environment, teaching about the environment, teaching for the environment can especially provide teachers with the reference to the implementation of environmental education in tourism factories.

B. Holding the Excursion Increases Teachers' Personal Capitals

Teachers can invoke students' coherence and sense of honor and strengthen parents' trust in and recognition to the teacher by leading students in an excursion, and gain the symbolic capitals. In the progress of activities, they can get alliance with the community and the experts, and increase their social capitals. In the process of collecting data and designing lectures, their speciality gets improved, and they acquire cultural capitals.

3. The Operating Tendency of Tourism Factory—Corporate Social Responsibility and Value

The reinforcement of environmental sustainability, care for society and protection to the inferiority constitute the subject of awarded marks in the contest of excellent tourism factory and the evaluation subject in the contest of international spotlight tourism factory.

It would be well if the tourism factories take offering economic capitals such as carfare grants or concessionary terms of the hand-on lectures into consideration. Supporting schools that tend to be in short of capitals not only shows the care for the inferior groups, but also becomes the word of mouth marketing. Tourism factories can blend the notion of “carbon footprint” into the plant installation, product manufacture, and selling procedure. For instance, the beauty apparatuses from Sonispa Tourism Factory acquire the endorsement of energy label by adding the factor of saving electricity, which not only gears to the international current of environmental sustainability, but also sets up the standard of green enterprise with innovation and continuing contribution to the society.



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The Parents' Cognition Attitude to Carry Out the Twelve Years Education Policy in Taiwan

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Abstract

This study is about to know the attitude of the parents whose children haven't been carried out the twelve years education for last three years to this educational policy in Taiwan. We want to know how much the parents know about this policy and how much they support it. We also analyze the problems that bother the parents and the influential factors to know parents actual perception and the relations of the actual requirement. As parents in Changhua, Taiwan to be persons we surveyed, we have delivered 460 questionnaires. We retrieved 388 questionnaires, including 302 valid questionnaires and 86 invalid questionnaires. The effective response rate is 66%. Ways to analyze data include descriptive statistics and one way analysis of variance (ANOVA). The result of this research says:

1. The value of parents knowing about the twelve years education is higher than the average.
2. The value of parents supporting to the twelve years education is higher than the average. To the most part of this educational policy, the value of parents supporting it is much higher than the average.
3. The value of parents having faith in the goal of this educational policy and its relevant adjustment is lower than the average. In the survey of how much parents having faith in the goal of this educational policy and its relevant adjustment, there are only three from ten subjects are beyond the average, and the others are below the average.

Keywords: the twelve years education, elementary education in Taiwan, Taiwan's education policy

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Introduction

The study is purported to explore into the attitude of parents of the first three years of students applicable of twelve-year public education program toward the implementation of twelve-year public education program. The study describes the research motive, purpose, terms and definitions, and study scope and limitation in the follows:

I. Research Motive

Education is the foundation to a country and the compulsory education provided by the government is a welfare policy for the people as well as a considerably important driving force in improving national quality. Taiwan's educational standards have substantially advanced after the extension of compulsory education from 6 years to 9 years, which also solidified the basis of human resources for senior technician during Taiwan's economic take-off in the 1970s. Nonetheless in consideration of the existing nine-year compulsory education program in Taiwan that already falls behind in the world plus the educational predicament for existing compulsory education such as urban-rural gap, mixed levels, equity issue in resource allocation, excessively intensified competitive pressure for advanced education, low-birth rate, and expensive private senior high school tuitions, the government already proposed suggestions for the promotion of extending compulsory education in order to cultivate talents on a long-term and continual basis.

On the eighth National Education Conference held on August 28 and 29 of 2010, the Ministry of Education took a comprehensive review on our education and proposed improvement strategies (Zhang, J.N., November 2010). Eventually President Ma Ying-jeou announced on January 1st of 2011 that the twelve-year public education will be implemented in 2014, namely August of 2014 (2014 academic year). In the following year the Executive Yuan President Wu, Duan-Yi also officially declared on the conference that more proactive promotion will be taken for the work related to the implementation of twelve-year public education program (Twelve-Year Public Education Program Promotion Report) (2012/4/10/2012).

The twelve-year public education program envisions three objectives in the upgrade of junior high school and elementary school education quality, accomplishment of children and establishment of solid national competitiveness. In particular, the upgrade of junior high school and elementary school education quality is the most essential and the first step to implement the visions (Twelve-Year Public Education Program Promotion Report) (2012/4/10/2012). Nonetheless as Ginsbery proposed (cited from book translation by Huang, Y.H., 1992): "Parents are the first teachers of children (Ministry of Education, Approved Version of Twelve-Year Public Education Program Implementation Program, 9/20/2011) and they have the most significant and prolonged impact on the life of children, who are positioned at the frontline of value supply, attitude formation and information supply." (p.13-17).

Dietz (1997) expressed that in the United States, parents and parental participation are the one of the key contents to the 2000 Education American Act and it is explicitly stated in the objective 8 of the act that in 2000, schools will promote the cooperation with parents by increasing parental participation in order to enhance children's growth

in all aspects, including social, emotion and academics. It shows that the significance of parents in the cognition and attitude for school education also represents the increasingly important function of parents in the educational work of children.

Several studies or consensus also show that the general public does not have too much understanding and confidence in the implementation of twelve-year public education program. Prior to the official implementation of the 2014 twelve-year public education program, the first three years of students facing this reform include the seventh graders, sixth graders and fifth graders currently enrolled in junior high school and elementary schools. Hence, how well the parents soon facing the same issues understand twelve-year public education program and how the government helps parents understand the objectives and contents of the program so that they can cooperate and support government reforms become considerably important. The views and attitudes of these parents can more quickly help the government modify the direction of systems related to this reform through comprehension, thereby matching reforms with social desirability.

If the parents can thoroughly comprehend the advanced study and learning of twelve-year public education program through the promotion of such program, the parents will consider the most ideal path for children with firm direction, and the children will be better prepared because of parents' reassurance. For this reason, the study intends to understand parents' cognition and support for twelve-year public education program by analyzing the disturbing issues and influence factors, discussing the specific cognition and implementation of requirement relationship and proposing specific approaches to effectively increase parental participation in campaigns for twelve-year public education program. Such approaches will modify the direction in post implementation of twelve-year public education program as well as to contribute to the values of research and practical applications in future educational reforms. The aforementioned are research motives of the researcher.

II. Research Purpose

Based on the aforementioned research motives, the study is purported to discuss the attitude of parents of the first three years of students applicable of twelve-year public education program in Zhanghua County toward the implementation of twelve-year public education program. More specifically, the study intends to complete four purposes, as described below:

- I. Understand the attitude of parents of the first three years of students applicable of twelve-year public education program in Zhanghua County toward the implementation of twelve-year public education program.
- II. Discuss parents' confidence in the promotion of twelve-year public education program.
- III. Understand the parental requirement for the program implementation.
- IV. Consolidate the research results and propose suggestions as reference for relevant departments and to implement educational reforms.

III. Research Method and Process

The study aims to understand the course, key policies and implementation status of Taiwan's implementation of the twelve-year public education program, in addition to

taking further steps in understanding the attitude of parents applicable for this policy toward the implementation of twelve-year public education program. To achieve the aforementioned purposes, the study primarily adopts questionnaire survey as described in the following research methods and process:

i. Research Method

The study applies questionnaire survey to investigate on the parental attitude toward the implementation of twelve-year public education program. The research tool is a “Parental Attitude toward Government Implementation of Twelve-Year Public Education Program Questionnaire Survey” developed by the research independently with reference on related literature and questionnaires according to the purposes of the study and questions to be resolved. The questionnaire aims to understand parental attitude towards the relevant measures taken by the government in the implementation and suggestions for the twelve-year public education program before further understand the current program implementation in-depth and the parents’ perception during the promotion.

IV. Scope and Limitation

The study encounters the following limitations for the inference of research methods and results due to the characteristics of scope and contents of research as well as the limitations in time and funding:

i. Regional Limitation

The objects of the study are limited to respondents in Zhuanghua Area and hence the study encounters regional limitation in terms of the interpretation and inference of research results.

ii. Limitation in Research Topics

The research topics aims to analyze the contents of twelve-year public education program to be implemented in 2014 and could be subject to limitation in scope of topics for the interpretation and inference of research results due to time constraint and more changes could take place with the implementation programs in the following few years.

iii. Limitation in Research Objects

The objects of the study are limited to the parents of enrolling junior high school students for 2011, 2012 and 2013, which may be limited for inference to other parents.

iv. Limitation in Research Tools

The researcher has developed an independent “Parental Attitude toward Government Implementation of Twelve-Year Public Education Program Questionnaire Survey” with reference on relevant literature and the validity of such tool still requires further testing.

Literature Review

I. The Origin of Twelve-Year Public Education Program (Background and Development)

Education is the driving force for social progress. In the past 50 years of economic miracles and political achievement created by Taiwan, the contribution of education

serves as the one of the most critical influence factors. Ever since the World Bank Group first invested in the education of developing countries, the expansion in education has become the key policy for developing countries. Moreover, the extension of years for national education and equal opportunity for education since 1970s has become the common trends for reforms in education among many countries (Report on Twelve-Year Public Education Program and National Education K Project (4/16/2003)).

Taiwan started implementing six-year compulsory education since 1945 and everyone is entitled to basic six-year education of elementary school. However, those students needed to take the higher education examination before enrolling for study at junior high school, which resulted in the pressure for advanced education and academic burden on elementary school students. On August 22, 1954, the Education Research Committee of Ministry of Education discussed “Relief of Academic Burden for Junior High School and Elementary School Students” on the first meeting, which showed that the academic burden on the junior high school and elementary school students were sufficiently heavy to draw attention from the public.

By 1968, in spite of the elimination of pressure for advanced education due to the implementation of nine-year compulsory education, the pressure has in fact shifted to junior high school students and such traditional joint admission system may have distributed resources of advanced education through fair and public procedures, so that students received the same standard appraisal through fair forms, regardless of the quality and finance of students. Although many excellent talents of Taiwan have been developed through this process, it also brought many exam-oriented educational issues for Taiwan. For examples, exam-oriented teaching could cause the school education to stress more on academic subjects and severely distorts the teaching objectives of schools, pushing students to become exam-oriented and could result in unbalanced physical and mental state due to the enormous pressure for advanced education. Over the years, the Education competent authority has been considering how to resolve the pressure and burden on junior and senior high school students by proposing many solutions and measures (Chen, Q.X., April 2007). The following describes the origin, reference and objectives of advocacy:

i. Origin of Advocacy

National infrastructure and economic development all depend on people. The cultivation of talents requires long-term continuation and starts from the basics. Statistics released by the United Nations Educational, Scientific and Cultural Organization (UNESCO) reveal that there are currently 46 countries having implemented national education for 10 years or more, and the main reason is that many undeveloped countries have noticed the association between national education and national competitiveness.

Taiwan has implemented nine-year compulsory education since 39 years ago. During the time of initial implementation, there were less than 10 countries worldwide implementing compulsory education over 9 years and Taiwan was ranked in the top percentile. However when compared with developed countries today, nine-year compulsory education has fallen behind. Meanwhile, in view of the national education status, there are still issues with urban-rural gap, mixed levels, equity issue in resource allocation, and excessive pressure for advanced education, as well as the concerns for

declined number of students due to low-birth rates. Particularly the majority of senior high and vocational high schools are private schools that charge 4 times higher tuition than public schools; nonetheless most students enrolled in private schools come from families of mid to lower social ranking. To comprehensively resolve the education predicament now and to strengthen the upgrade of national manpower qualities, it is deemed necessary to extend the years of national compulsory education.

Over the years, the society holds high consensus and expectation for the extension of national compulsory education. The suggestions for Taiwan's advocacy for extension of compulsory education unfolded as early as 1983, which underwent the administration of 11 ministers of Ministry of Education. Recently on the National Educational Development Conference held in September 2003, the conclusion and consensus were reached for the "Phased Advocacy for Twelve-Year National Basic Education." In December 2006, the investigation of "2006 Investigation Report on Public Views on Key Educational Issues in Taiwan Area" conducted by the Preparation Office of National Academy for Educational Research revealed that as high as 78.44% of people supported the implementation of twelve-year national basic education.

In view of this, the Government called for Taiwan Economic and Sustainable Development Meeting between July 27~28, 2006 to include this agenda and reached consensus for proactive consensus. Hence, the Executive Yuan approved the advocacy of twelve-year national basic education in the "Warm Society Welfare Program" with the Ministry of Education in charge of planning in addition to appointing Minister without Portfolio Wang-Yi Lin to serve as the policy coordinator and supervisor. The twelve-year national basic education was gradually advocated since 2007. This year the program implemented tuition funding for economically disadvantaged private senior high school and vocational high school students and high/vocational high school quality program. Moreover, the junior high school and elementary school student learning aid program was comprehensively launched in 2008 with the twelve-year public education program fully implemented in 2009.

During this period, the program diminishes the tuition gap between public and private high/vocational high schools, increases admission rate, promotes quality high /vocational high schools as well as several supporting measures to gradually integrate high /vocational high schools with communities, relieve pressure for advanced education for junior high school students, and balance urban-rural educational gap. The implementation of twelve-year public education program can comprehensively cultivate outstanding students, solve some educational issues current derived and create one satisfying educational environment for parents, students and teachers (Analysis of the Policy Planning and Course for Twelve-Year Public Education Program, Journal of Education Research, June 2007 (Issue 158), Chen Y.X. and Wang X.N., 2007).

In 1994, more than seventy civil educational reform groups gathered to hold the "410 Educational Reform Parade" in Taipei and Kaohsiung currently by proposing multiple appeals such as the "implementation of small class and small school," "extensive establishment of senior high schools and universities," "promotion of modern education," and "development of Basic Education Act." These movements reflected the discontent for educational status and become a wave of reforming pressure and

atmosphere (Fu C.Y., 2007). The Government also called for the seventh National Education Conference in June 1994 to establish the “Educational Reform Review Committee” and propose the development of indicators of basic academic proficiency, diversified senior high school admission system and other specific suggestions. In February 1995 the “Education Report of R.O.C.” was published with appeals in “alleviating pressure for advanced education” and “education liberalization.” The report also suggested for improvement on the senior high school admission system by establishing diversified admission channels and guiding the normal development of junior high school teaching. The reports revealed that “Schools can select students through diversified and flexible approaches from existing senior high school admission system to alleviate the pressure for advanced education in students. Hence the future senior high school admission system not only will improve the questioning techniques for senior high school joint examination but also cooperate with the establishment of senior high school features by adopting registration, application, referrals, recommendations for admission, distribution, direct promotion, and recommendations, so that students can choose suitable schools according to their aptitude, interests and will. This approach not only alleviates the competitive pressure for senior high school admission but also provides full development of students’ potential” (Ministry of Education, 1995).

After the proposal of “the Consultants' Concluding Report on Education Reform, the Ministry of Education consolidated the concepts of books and policies in 1998 by choosing key items to summarize into the “Education Reform Action Plan,” where 12 educational reform plans were advocated. The Ministry of Education also announced to replace traditional senior admission examination with the Basic Competence Test for Junior High School Students since 2001. The Ministry also adopted senior high school diversified admission program to offer 6 channels for advanced education, including basic competence test registration and distribution based admission, admission through referrals, admission through application, and voluntary school counseling distribution for admission, admission by recommendation for talents and special identity, and direct promotion admission. These six channels of advanced education are targeted different objects with different methods, exhibiting a diversity of dimensions. Nonetheless in 2000, the former Ministry of Education Minister Ceng, Zi-Lang received a letter from students and he took a turn in policy by excluding the school academic performance of students and changed to using performance in “Basic Competence Test for Junior High School Students” as the main reference of admission.

In summary, the development and background of twelve-year public education program was be divided into the following three points: (Twelve-Year Public Education Program Related Research Literature Collection, Chen, Q.X. /National Academy for Educational Research Preparation Office Director secretary seminar information Vo. 24, Issue 2 (April, 2007).

(1) Core National Education Issues

Many former Ministry of Education ministers have advocated the policy of extending national education since 1983 but have not able to succeed or conduct long-term follow-up research and evaluation results. After half a century, the academic burden on students has not been diminished as one of the most essential problems was exam-oriented. Many disputes in educational reforms such as “diversified admission,

One-Guide-Multiple Text for textbooks, and basic competence test for junior high school students all have issues with exam-oriented, parents and student values. Adopting exam-exempt admission by school district for junior high schools promoting to senior high schools and improve each senior high school/vocational high school to become quality schools will alleviate pressure from students in advanced education and the remedial for reducing academic burden. Currently the ratio of Taiwan's junior high schools graduated students admitting to senior high school education (senior high school, senior vocational high school, and the first 3 years of the 5-year vocational high school) is 95%. Under the gradual declining pre-school population, the admission capacity for senior high schools to reach 100% admission is foreseeable. In recent years, efforts in advocating for senior high school/vocational high schools with communities and promotion of comprehensive senior high schools are factors in the best interests of twelve-year public education program.

(2) History of Extending Years of National Education

From Taiwan's implementation of six-year compulsory education in 1945 to the nine-year national education implemented in 1968, the expansion of public junior high school capacity and the adoption of exam-exempt admission by school districts have alleviated the elementary school students' pressure for advanced education and academic burden. However such pressure has been deferred to junior high school students promoting to senior high school. Former Ministry of Education Minister Zhu, Hui-Seng proposed the "Extending Vocational Education Oriented National Education Program" in 1983, put the "Preliminary Program of Extending National Education – Junior High School Students Voluntary Admission to Senior High School Program" into pilot-run in 1990, in addition to applying "Voluntary Admission, Tuition Exempt and Examination-Exempt Admission" as standards of policies. After Minister Fan took office, he executed the "Development and Improvement on Junior High School Skills Education Program – Towards Ten-Year National Education" in 1993.

By 1996, the Ministry of Education started to operate comprehensive senior high school in attempt to become one of the school models for senior high school education later and to achieve the educational goals in adaptive development for students. Minister Wu Jing and Minister Lin, Qing-Jiang started planning and launching the "Exam-Exempt Vocational High School Diversified Admission Program" and "Senior High School Diversified Admission Program" in 1998, establishing the prototype of extended national education, in addition to replacing the joint examination with basic competence test for junior high school students in 2001. After 1999, the Minister Yang, Zhao-Xiang, Minister Ceng, Zhi-Lang and Minister Huang, Rong-Cun suggested the issues on extending the years of national education by launching the "Integration of Senior High School /Vocational High School with Communities" program and "Senior High School Diversified Admission Program" in 2001 to encourage students graduated from junior high school to take consideration of basic competence test performance and aptitudes for applying nearby community senior high school or vocational high school, comprehensive senior high school, and completing junior high school for continual advanced education, which all contributed to the implementing environment of twelve-year public education program (Chen, S.X., 2005; Ministry of Education, 2006).

The Ministry of Education organized the National Education Development Conference in September 2003 and appointed scholars to conduct a research on planning of twelve-year national education program. After Minister Du, Zheng-Sheng took office in May 2004, he developed a pre-support measure for twelve-year public education program to advocate for the twelve-year public education program. Moreover, the minister organized the planning and decision for the twelve-year public education program by drafting implementation plans and consulting with opinion form parent and teacher groups to form consensus for advocacy by phase (Ministry of Education, 2006).

(3) Worldwide trends in extending national education

Most countries extend compulsory education in attempt to provide more sufficient employment knowledge and capacity as well as the basic citizen skills before turning 18 years old. Currently among the 195 countries with complete data, there are 85 countries that implement at least 10 years of compulsory education, including 5 countries implementing 13 years of compulsory education (i.e. Germany, Belgium and Holland), 16 countries implementing 12 years of compulsory education (i.e. England, America, and New Zealand), 21 countries implementing 11 years of compulsory education (i.e. Australia, Canada, France, Israel, and Ice Land), and 43 countries implementing 10 years of compulsory education (i.e. Russia, Finland, Norway, Ireland, Spain, Hungary, Sweden, and Singapore). Therefore extending the years of national education has inevitably become the trends in educational development (Zhang, T.F. and Lin, S.Y., Seminar Information 87 Vol. 24, Issue 2, April 2007, Education and Development 2006, Chen S.X., 2005).

In the past 20 years, the former ministers of Ministry of Education have all taken actions in the drafting and planning for the extension of national education, as described on the following key planning content and outcome: (Table prepared from the Twelve-Year Public Education Program and National Education K Project (April 16, 2003) Chen, Qing-Xi (April 2007) Report on the Advocacy for Twelve-Year Public Education Program).

According to the current social development, coping with industry upgrade and creativity added-value through “knowledge economy” and strengthening our global competitiveness, the call for overall improvement on educational environment through total upgrade in human resource qualities becomes increasingly important in terms of extending the national education. Hence, the objectives for advocating twelve-year public education program include:

- (1) Upgrade national qualities and enhance national competitiveness.
- (2) Advocate for equal opportunities for education and realization of social fairness and justice.
- (3) Diminish educational gap and balance urban-rural development.
- (4) Alleviate pressure for advanced education and guide students with adaptive development.

II. Status of Twelve-Year Public Education Program

When newly appointed Ministry of Education Minister Jiang, Wei-Ning took office in 2012 and accepted media questioning during the first tea party with the media, he

proposed the eight policy appeals to be implemented in the following 2 years, including the stabilized advocacy for twelve-year public education program, revitalization of teacher's profession, and proactive development of digital teaching that project innovative concepts into education to build a new look of education. In the stabilized advocacy for twelve-year public education program: Jiang, Wei-Ning suggested to alleviate student pressure from tests and help students with adaptive development through the twelve-year public education program.

The twelve-year public education program is based on the nine-year national education bearing five philosophies:

(1) Philosophy

The advocacy for the twelve-year public education program is built on the basis of the nine-year national education bearing five philosophies.

1. Teach without discrimination: Senior high school education is targeted at national aged 15 years or older with equal opportunity in education, regardless of race, gender, ranking, social-economic conditions, and regions.
2. Level-based teaching: For students with different intelligence, aptitude and interests, schools of different nature and types are established to teach through different courses and grouped teaching.
3. Talent Development: Adaptive counseling can lead students to understand their won aptitude and interests as well as the basic model of society workplace and employment structure.
4. Diversified Career Path: Develop a diversity of aptitude, intelligence and interests in students and thereby find out the career path for each student in order to continue advanced education or seek for employment.
5. Quality links: Senior high school education links up with junior high school education on one hand so that students can develop though regular teaching and balanced five dimension of education while on the other hand balance the urban-rural educational resources through the equity of senior high/vocational high school. Consequently there will be quality educational environment all over Taiwan for students to continue advanced education or seek employment in the workplace with lifelong learning.

(2) Objectives

The objectives in advocating for twelve-year public education program are based on the perspective of pluralism in country, society and individual student. The overall objectives and activate the specific objectives in preparatory phase are described below:

1. Overall Objectives

- (1) Improve basic national knowledge to cultivate modern citizen quality.
- (2) Strengthen the basic national competency to solidify the national economic competitiveness.
- (3) Promote equal opportunity in education to fulfill social fairness and justice.
- (4) Enrich senior high school resources to balance the development of regional and urban/rural education.
- (5) Implement aptitude exploration and career counseling for junior high school students in addition to leading students with diversified adaptive advanced education or employment.

(6) Effectively alleviate excessive pressure for advanced education by leading the normal teaching and balanced development in the five dimensions of education in junior high school.

(7) Strengthen junior high school student learning achievement evaluation mechanism to assure the basic quality of junior high school students.

2. Activate preparatory specific objectives by phases (August 2011 to July 2014)

(1) School enrollment rate reaches 99% or higher.

(2) Exam-exempt admission rate reaches 75% or higher.

(3) Enrollment rate to nearby school reaches 80% or higher.

(4) National quality senior high/vocational high school rate reaches 85% or higher.

(5) Implement junior high school adapting counseling and learning achievement evaluation mechanism.

(6) Availability promotion and establish consensus.

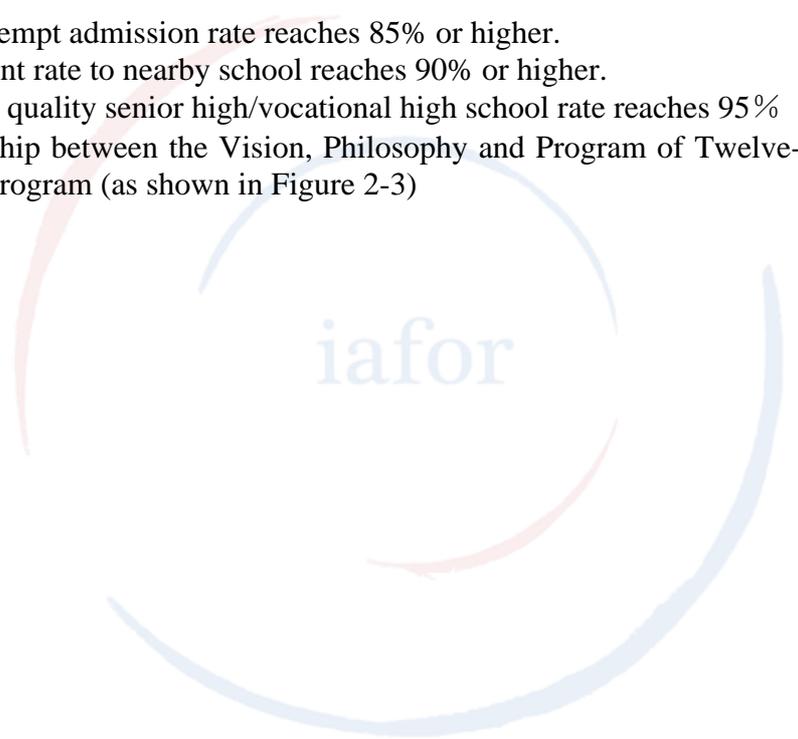
3. Comprehensive implementation of specific objectives by phase (August 2014 to July 2020)

(1) Exam-exempt admission rate reaches 85% or higher.

(2) Enrollment rate to nearby school reaches 90% or higher.

(3) National quality senior high/vocational high school rate reaches 95% or higher.

x. Relationship between the Vision, Philosophy and Program of Twelve-Year Public Education Program (as shown in Figure 2-3)

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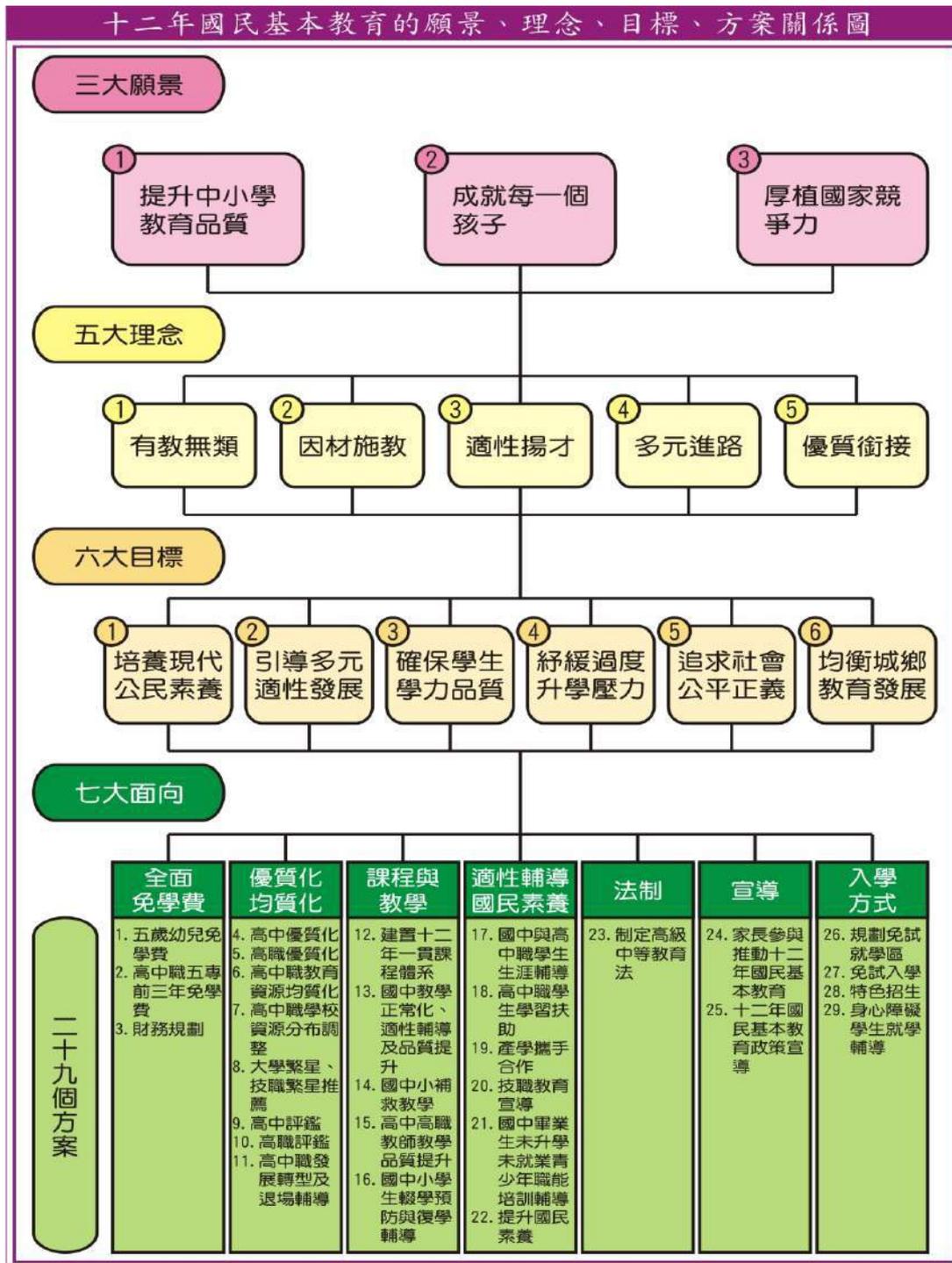


Figure 2-3 Relation Diagram between the Vision, Philosophy and Program of Twelve-Year Public Education Program

Source: Twelve-Year Public Education Program Implementation Approved Version Relation Diagram between the Vision, Philosophy and Program of Twelve-Year Public Education Program

Three visions

1. Improve the educational quality for junior high school and elementary school.
2. Accomplish each child
3. Build solid foundation for the national competitiveness

Five philosophies

1. Teach without discrimination
2. Level-based teaching
3. Talent Development
4. Diversified Career Path
5. Quality links

Six objectives

1. Cultivate modern citizen quality
2. Lead with diversified adaptive development
3. Assure students' academic quality
4. alleviate excessive pressure for advanced education
5. Pursue social fairness and justice
6. Balanced urban-rural education development

Seven Dimension

Total tuition exempt

Quality and Equity

Course and Teaching

Adaptive counseling for national quality

Legislation

Promotion

Admission

29 Programs

1. Tuition exempt for five-year old children
2. Tuition exempt for the first three years of senior high school/vocational high schools
3. Financial planning
4. Quality senior high school
5. Quality senior vocational high school
6. Resource equity for senior high school/vocational high schools
7. Adjustment on resource distribution for senior high school/vocational high schools
8. University referral and vocational college star referral
9. Senior high school appraisal
10. Vocational high school appraisal.
11. Transition and withdraw counseling for senior high school/vocational high schools
12. Establishing twelve-year public education program
13. Normalization, adaptive counseling and quality improvement for junior high school teaching.
14. Remedial teaching for junior high school and elementary school students
15. Improvement on faculty teaching quality for senior high school/vocational high schools
16. Dropout prevention and return counseling for junior high school and elementary

school students

17. Student career counseling for junior high school and senior high school/vocational high schools
18. Learning aids for senior high school/vocational high school students
19. Industry-Academic Collaboration
20. Vocational education promotion
21. Youth occupational cultivation counseling for junior high school students without pursuing advanced education or employment.
22. Improve national quality
23. Develop Senior High School Education Act
24. Parents participating in the promotion of twelve-year public education program
25. Policy promotion for twelve-year public education program
26. Planning exam-exempt school area
27. Exam-exempt admission
28. Featured Admission
29. Admission counseling for students with disability

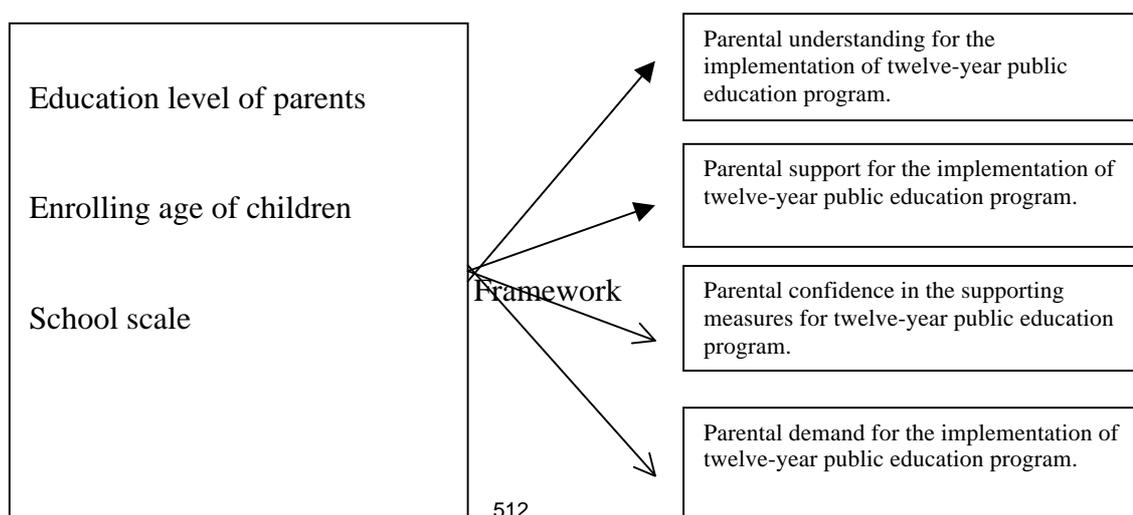
Research Design and Implementation

The study is purported to analyze the cognition of parents of the first three years of students applicable of twelve-year public education program in Zhanghua County toward the implementation of twelve-year public education program. The study discusses relevant literature from the background, history, contents of implementation, and studies related to twelve-year public education program.

Next, the study applies questionnaire survey to understand the view held by the parents of the first three years of students applicable of twelve-year public education program in Zhanghua Area toward the implementation of twelve-year public education program. The content includes cognition, support, confidence, and requirement for the program. To attain the foregoing purpose, the study designs and implements according to the research framework, method, tools, objects, and data processing.

I. Research Framework

The study objects comprise of parents of seventh graders, eighth graders and sixth graders in Zhanghuan County with primary variances including parental cognition for the twelve-year public education program and parents demand for the governmental implementation of the twelve-year public education program campaign. The study consolidates the main variances as shown in the research framework of Figure 3-1.



II. Objects and Methods

i. Research Objects

The study objects comprise of parents of seventh graders, eighth graders and sixth graders in Zhanghuan Area.

ii. Sampling Method

The sampling method of the study adopts two-phase sampling method, whereas the first phase adopts “stratified and cluster sampling” and the second phase adopts “simple random sampling,” as described below:

Phase II adopts “Stratified and Cluster Sampling”

Due to the massive population in parents of students in Zhanghua area, the adoption of individual-based random sampling could results in extremely discrete samples and taking into consideration of the funding and time of the researcher, Phase I adopts school-based “stratified and cluster sampling” to truly reflect the distribution structure of the population. Hence, the “school scale” of public elementary schools in Zhanghua County as stratified basis.

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Table 3-1 Scale of Junior High Schools and Elementary Schools in Zhanghua County

	35 classes (including) or more	35 classes ~ 12 classes	11 classes (including) or lower
Junior High School	20 schools	16 schools	5 schools
Percentage	49%	39%	12%
Elementary School	21 schools	73 schools	81 schools
Percentage	12%	42%	50%

Table 3-2 Distribution of Stratified Sampling Junior High School and Elementary Schools in Zhanghua County

No. of classes / Phase	35 classes or more	Percentage	35~12 classes	Percentage	11 classes or lower	Percentage
Eighth grader samples	1 school	50%	2 schools	33%	1 school	16%
School sampled	Zhangxing, Yangmin	Xioshui,	Huatan, Dacun		Changhua Arts Senior High School	
Seventh grader samples	3 schools	50%	2 schools	33%	1 school	16%
School sampled	Zhangxing, Yangmin	Xioshui,	Huatan, Dacun		Changhua Arts Senior High School	
Seventh grader samples	1 school	12%	3 schools	38%	4 schools	50%
School sampled	Zhongshan		Wanglai, Chengkong	Baisha,	Wenxiang, Guangxing, Qiaoai, Huanan	

Source: Zhanghua Government Department of Education <http://www.boe.chc.edu.tw/>
The number of schools sampled was 20 schools.

Phase II adopt “simple random sampling.” Each class of school is numbers and adopting simple random sampling to draw the class needed for each school. Table 3-3 shows the classes drawn for each school and the number of questionnaires as well as recovery.

Table 3-3 Questionnaire Recovery

	Number of samples	No. of Questionnaire Recovered	Recycling Ration
Eighth Graders	148	127	85.81%
Seven Graders	156	125	80.13%
Six Graders	156	136	87,18%
Total	460	388	84.35%

Table 3-4 List of Experts and Scholars Participating in Opinion Poll

Name	Current Position
Cong-Xing Zheng	University of Kang Ning Assistant Professor and Director
Zi-Ping Jiang	University of Kang Ning Assistant Professor and Director
Shu-Ya Ye	Zhanghua County Xioshui Junior High School Teacher
Shu-Yuan Li	Kaohsiung City Qixiang Elementary School teachers and parents
Guo-Ming Luo	Parents of Zhuanghua County Hemei Junior High School students

IV. Data Processing and Statistics

The data processing of the study applies SPSS FOR WINDOWS to conduct statistics analysis, which statistical method is described below:

i. Answering and scoring

Use numerals as codes of the different background variables for the respondents. Respondents are required to fill out the questionnaire based on their own situation. The answering and scoring of questionnaire adopts five-Richter scale for respondents to choose the fittest items with check, namely 5 points, 4 points, 3 points, 2 points, and 1 point.

ii. Methods of Statistical Analysis

1. Adopt number of allocation and percentage statistical method to describe the distribution of background variables in parents tested and the distribution of children variables, parental attitude, support and confidence in the twelve-year public education program.
2. Adopt means and standard deviation statistics to understand the distribution of the total accounts in different aspects of the questionnaire.
3. Adopt ANOVA to test the different education of parents, student grades, schools scales and parents of different background variables to demonstrate significant difference on the scales and dimensions of the questionnaire.

Conclusion and Suggestion

The study aims to analyze the attitude of parents of the first three years of students applicable of twelve-year public education program toward the implementation of twelve-year public education program. The study understands parental cognition and support for the of twelve-year public education program by analyze the problems of difficulties and influence factors to discuss the actual cognition and requirement relation. The researcher applies questionnaire survey to collect data with analysis and organization, followed by drawing conclusion from the study findings and eventually proposes suggestions for reference.

I. Conclusion

1. Parental understanding related to measures for the twelve-year public education program.
2. Parental support for measures related to the twelve-year public education program exceeds the means.
3. Parental confidence in the educational objectives and supporting measures for the policy on twelve-year public education program falls under the means.
4. Parental demand for the implementation of twelve-year public education program exceeds the means.
5. Parents of different education do not show significant difference for the understanding of twelve-year public education program.
6. Parents of different education do not show significant difference for the support of twelve-year public education program
7. The confidence in parents of different education for the educational objectives and supporting measures of twelve-year public education program.
8. Parents of different student grades do not show significant difference for the understanding of twelve-year public education program.
9. Parents of different student grades shows significant difference for the support of twelve-year public education program
10. Parents of different student grades do not show significant difference for the educational objectives and supporting measures of twelve-year public education program
11. Parents of different school scale do not show significant difference for the understanding of twelve-year public education program.
12. Parents of different school scale do not show significant difference for the support of twelve-year public education program.
13. Parents of different school scale do not show significant difference for the educational objective and supporting measures of twelve-year public education program.

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High School Dropouts: An Issue for the Individuals and the Country

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Official Conference Proceedings

Abstract

In order to address this pressing issue of high school dropout rates in the United States, this paper will examine the “push” and “pull” factors leading to this phenomenon. “Push” factors include graduation requirements and related educational policies put in place that affect a student’s ability to graduate . Social factors that influence graduation rates such as family, friends, peers and the labor market conditions are “pull” factors (Warren, 2010). In order to understand “push” “pull” effects, a methodological analysis is presented that examines different alternates that could help address the issue (Warren, 2010). The paper compares different options for the country to consider and implement in order to increase graduation rates while maintaining a quality education.

- 1.Ease the transition from 8th to 9th grade
- 2.Increase the Compulsory School Attendance Age (CSAA)
- 3.Collaboration within the district to implement programs and steps to address the issue of high school graduation

The analytical focus of the paper will be on the common good and how each option will affect the common good of the country. Each of the alternatives is addressed in this paper from the point of view of the interests of the nation, the economy, and least priority given to the individual’s freedom, with the highest consideration given to that alternative that best meets the needs of the common good.

Keywords: education, high school graduation

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Introduction

Education has played a vital role in the history of the United States. It has been a topic of public interest from the beginning of the country's formation as demonstrated in 1785 during the U.S. Continental Congress (Kober, 2007). It was a policy issue of tremendous importance to our Founding Fathers such as Thomas Jefferson, and it continues to be an issue of primary importance to the U.S. public due to the effects of a quality education on both individuals and the collective country (Kober, 2007). Education also prepares the youth to be more productive at work, as well as teaching them how to become productive citizens (Obama, 2013). In order for the country to stay on top of the global economy it must educate students to become productive citizens and live fulfilling lives (Kober, 2007).

High school dropout rates become an issue of producing a less productive citizenship as well as reduced skills in the workforce, consequently hurting the national and global economy (Rumberger, 1987). Dropout rates increase the number of individuals who rely on public assistance, draining the national and global economy and decrease the life satisfaction of the individuals (Warren, & Hamrock, 2010).

In order to address the pressing issue of high school dropout rates this paper will examine the "push" and "pull" factors leading to the phenomenon (Warren, & Hamrock, 2010). "Push" factors include graduation requirements and related educational policies put in place that affect a student's ability to graduate (Warren, & Hamrock, 2010). "Pull" factors are the social factors that influence graduation rates such as family, friends, peers and the labor market conditions (Warren, 2010). In order to understand "push" "pull" effects, a methodological analysis is presented that examines different alternatives that can help address the issue (Warren, & Hamrock, 2010). This paper compares three different options for the country to consider and implement in order to increase graduation rates while maintaining a quality education.

1. Ease the transition from eight grade to ninth grade
2. Increase the Compulsory School Attendance Age (CSAA)
3. Collaboration within the district to implement programs that address factors contributing to dropout rates

The analytical focus of the paper will be on the common good and how each option will affect the common good of the country. Personal freedom, also a core value of our country, is important, but will not weight as heavily due to the students being minors. The common good takes precedence because the interests of the collective nation is most important. Persuading students to stay in school would be the ideal solution when correlating it with personal freedom, because this allows students to have the right to choose. Ultimately, the common good takes priority and will be perused through means of coercion, such as taking legal action in order to keep students in school, if needed.

Background

Data can help illustrate trends associated with high school dropouts and the effects on the nation. For example those who are more educated are more likely to participate in the country's democratic system and be more responsible citizens. This would be

expected to lead to a decrease in crime as more people become fully invested in society. It has been shown that disadvantaged students only have a 55% chance of graduating from high school (Swanson, 2004). Students considered to be disadvantaged are economically disadvantaged and/or those students who are a part of a minority group (Swanson, 2004). In 2002 only about 71% of high school students graduated from high school with a regular diploma (Greene & Winters, 2006). Of the students who graduated, about half of the eligible African America and Hispanic students who made it to the ninth obtained their high school diploma (Greene & Winters, 2006). The phenomenon continues to be a concern because it can affect the individual and the nation due to the correlation between education and productive citizenship.

“Push” “Pull” Factors and High School Dropouts

There are several “pull” factors affecting a student’s achievement in school. Household income, parental involvement (Condron, 2011), and self-motivation (Randolph, Fraser, & Orthner, 2006) are a few factors. Families with a higher income contribute more money to their children’s education and are more likely to demand a higher educational outcome (Colburn, 7 Horowitz, 2003). Because they can afford to do so, households with higher incomes are also more likely to send their children to enriching summer programs (Colburn & Horowitz, 2003). Parents who are more involved tend to be college educated which results in a higher economic status and correlates with their children scoring higher on exams (Colburn & Horowitz, 2003).

A parent’s involvement can affect the outcome of the students’ educational attainment, but so can the students’ self-motivation (Randolph, Fraser, & Orthner, 2006). Students who are motivated and actively involved in their school and in extracurricular activities are less likely to dropout (Randolph, Fraser, & Orthner, 2006). In the case of extracurricular activities there are two “pull” factors affecting the likelihood of a student participating in the activities (Warren, & Hamrock, 2010). The factors are self-motivation and family income. Students living in low-income households are least likely to take part in extracurricular activities, perhaps due to time and/or money commitments that are required (Warren, & Hamrock, 2010).

While “Pull” factors can have a great effect on a student’s likelihood of graduating, there are “push” factors that also affect a student’s education. Organizations have been established to help create new policies to better our educational system. The U.S. Department of Education, policies such as No Child Left Behind, and standardized testing are all examples of “push” factors.

Decreased Life Satisfaction

Not completing high school has shown to not only negatively affect the country but also the individuals and the individual’s life satisfaction. Dropping out of high school has proven to correlate with lowered self-esteem as well as drug use (Vallerand, Fortier & Guay 1997). It also results in an increased likelihood of participating in risky behavior, as well as an increased probability of suffering from mental health illnesses (Liem, Lustig & Dillon, 2010). Those who do not complete high school also report they were less satisfied with their life (Rumberger, 1987). High school dropouts

also have an average lower income when compared to incomes of high school graduates (Rumberger, 1987).

How It Affects the Country's Economy

Non-high school graduates are more likely to be unemployed compared to those who graduate from high school or obtain an equivalent to a high school diploma such as a GED (Rumberger, 1987). This results in non-high school graduates being at a higher risk of becoming reliant on public assistance programs (Kaufman, Alt, M.N., & Chapman, 2004). During a high school dropout's life time it is estimated that each individual will cost the country's economy an additional \$240,000 due to their estimated reliance on welfare, Medicare, Medicaid, lower tax contributions and increased crime rates (Chapman, Laird, Ifill, & KewallRamani, 2011).

Individual's life satisfaction and effects on nations economy

1. *"Forgone National income;*
2. *Forgone tax revenues for support of government services;*
3. *Increased demand for social services;*
4. *Increased crime;*
5. *Reduced Political participation;*
6. *Reduced intergeneration mobility;*
7. *Poorer levels of health."*

Taken from: Russell W. Rumberger, "High School Dropouts: A Review of Issue and Evidence," Review of Educational Research 57, no. 2 (1987): 114-115.

Methodology- Literature Review

There are several factors affecting the individual's decision to drop out of high school. In order to obtain a better understanding of why students drop out of high school and the reasons leading up to this decision, it is apparent through literature reviews that there are many factors or reasons behind the decision. The "push" "pull" factors affecting high school dropout rates provide a basis to categorize and better understand the reasons leading to the decision to drop out (Warren, & Hamrock, 2010). An examination of several case studies and a literature review helps to understand what solution would be most beneficial in decreasing high school dropout rates while also considering the "push" "pull" factors in place (Warren, & Hamrock, 2010).

The alternatives will be analyzed on the basis of whether they are a "push" or "pull" factor and how effective, politically feasible and administratively feasible they are (Warren, & Hamrock, 2010). Effectiveness is weighed the highest, in considering the alternatives. An alternative is evaluated on effectiveness based on the outcomes it produces in decreasing high school dropout rates. Political feasibility is the next factor considered. It is analyzed through two lenses: will political stakeholders, who create

policy back up the alternative, and is it politically possible to fund the program. Administrative feasibility has the least weight when considering the alternatives.

The analysis in this paper is focused solely on what can be done in high school to decrease high school dropout rates, as well as what can be done to help incoming high school freshman. Many factors also having “push” or “pull” effects on high school dropout rates will not be considered in the analysis of this paper (Warren, & Hamrock, 2010). Some factors include the family’s parenting style, as well as the effects and implications early childhood education has on dropping out of high school. The effects changing legislation and course requirements has on the dropout rate were not addressed. Future research and analysis will need to be done on these separate topics to determine if legislative actions can help.

Criteria

The criteria used to evaluate each of the alternatives are 1) effectiveness, 2) administrative feasibility and 3) political feasibility. The evaluation of effectiveness will be assessed through the effect the alternatives have in decreasing the dropout rate in the schools, districts, and states the alternatives have been implemented in. Political feasibility is important in making several changes due to the support needed by appointed officials in order for new policy and/or procedures to be carried out. Administrative feasibility is important because the school administration will need to enforce and/or carry out new policies. There also needs to be enough staff for this to happen.

Transitioning into 9th Grade

During the first year of high school many “push” “pull” factors have already taken place and will continue to take place that affect a student’s success in school (Warren, & Hamrock, 2010). Ninth grade year can help educators determine students at a high risk or dropping out. Freshman have the most missed classes resulting in lower grade point averages (MaCallumore & Sparapani, 2010). The ninth grade is also the first year many students are faced with the pressure of completing their coursework with what their school considers a passing grade (MaCallumore & Sparapani, 2010). Many times students are not faced with these requirements before they reach high school. When they reach high school their low performance is many times a result of not being fully prepared to take on the coursework (MaCallumore & Sparapani, 2010). For these reasons how successful the transition into the ninth grade year can be used to determine the likelihood of a student graduating.

The “pull” factors affecting the students’ performance in school are the social aspects affecting their high school experience (Warren, & Hamrock, 2010). A student’s transition time from middle school to high school can be a time in which the student feels lonely and disconnected (MaCallumore & Sparapani, 2010). Other concerning factors for students that can affect their academics are the transition from a small middle school to a new experience in a larger high school. In addition there is the possibility of being bullied by older students (MaCallumore & Sparapani, 2010).

With these “push” “pull” concerns there are a few things that can take place to help address both issues (Warren, & Hamrock, 2010). First there should be collaboration

between middle and high school teachers (MaCallumore & Sparapani, 2010). The educators should discuss the curriculum and come up with a plan that can better address the students' academic needs (MaCallumore & Sparapani, 2010). Providing incoming freshman with a map of the school building, and a meet the teacher night can help elevate some of the social concerns the students may have (MaCallumore & Sparapani, 2010).

There are schools that have implemented a ninth grade transition program. These programs provide students with items such as a map of the school building meet the teacher night and courses such as High School 101 in order to teach time management skills (MaCallumore & Sparapani, 2010). There are also programs known as "freshman academies" (MaCallumore & Sparapani, 2010). These academies are isolated from the larger school and have one goal in mind, to help ninth grade students become acquainted with the work load expected of them before they take part in the big high school atmosphere and are integrated into courses with upperclassmen (MaCallumore & Sparapani, 2010). Schools that implement such measures see an improvement in attendance and academic success (MaCallumore & Sparapani, 2010).

Easing the transition from eight to ninth grade has shown to be beneficial for students. On average a high school with a ninth grade transition program has an 8% dropout rate in comparison to a 24% average dropout rate for a school without a transition program (MaCallumore & Sparapani, 2010). Schools that have created a freshman academy have shown a significant improvement in attendance rates and a decreased course failure in the ninth grade (MaCallumore & Sparapani, 2010). A transition program school would be most politically feasible due to the low cost of implementation, and the impact on decreasing the dropout rate. A freshman academy many times requires its own building or wing, therefore demanding more resources to be used in creating the academy decreasing its politically and administrative feasibility.

Collaborating within the District

Collaboration within the district can influence on a students' academic success and high school completion. There is a need for collaboration between the middle and high school teachers to better prepare students for the struggles of high school. Collaboration within the district can help a student's transition into high school which could ultimately affect the dropout rate. In Colorado, the state has increased collaboration efforts to decrease dropout rates and has seen a 0.8% increase in graduation rates in two years (Malcaver & Groginsky, 2011).

The new collaborative efforts have just begun and future improvement is expected. In order for it to be politically feasible there must be consistent collaboration within the school district and stakeholders. The increase in hours in order for collaboration to occur could be costly. This is a fairly new initiative and its complete effectiveness is not yet seen, but it shows movement toward the right direction.

Increasing the Compulsory School Attendance Age (CSAA)

Increasing the Compulsory School Attendance Age (CSAA) can be another "push" factor affecting the dropout rate (Warren, & Hamrock, 2010). "Pull" factors affecting

when a student decides to drop out of high school are the rules and structure imposed on the student (Warren, & Hamrock, 2010). Students who have dropped out of high school report they had little structure in their life influencing their decision to drop out (Landis & Reschly, 2011). Increasing the compulsory school attendance age to 18 can help decrease the dropout rate by requiring students to stay in school no matter what “pull” factors outside of school are influencing their decision (Landis & Reschly, 2011; Warren, & Hamrock, 2010).

Increasing the compulsory school attendance age to 18 would be difficult due to controversy and its feasibility. The “pull” (Warren, & Hamrock, 2010) factors affecting the decision of CSAA is the message that school is not important (Landis & Reschly, 2011). Others argue that students should not be forced to stay in school due to the added cost the district will incur (Landis & Reschly, 2011). Raising the required age of staying in school would be very costly due to the administration needs resulting from the increase in the number of students staying in school. Much of the information on the cost to the state if the CSAA is increased is empirical. The state of Maryland put forth their own initiative and raised the required school attendance age costing the state an additional \$200 million (Landis & Reschly, 2011). This information suggests that increasing the CSAA is not politically or administratively feasible.

Solution/Conclusion

Providing a transition program has proven to be the most effective in decreasing the dropout rate as seen in schools that have implemented the program. It is also the least expensive of the alternatives. In the transition program many “pull” factors such as new anxieties students may have when entering high school were answered but the “push” factor concerning the curriculum was not addressed (Warren, & Hamrock, 2010). The transition program brought to light the fact that many times students are unprepared academically to handle high school coursework. Collaborative efforts within the district in creating a curriculum that would address the issue could be beneficial. Future research is needed to see the impact a collaborative effort between middle and high school educators would have on decreasing the dropout rate.

While collaborative efforts within districts and stakeholders alone have proven to be effective it is a fairly new program that has many possibilities for a bright future but its effects are minimal in comparison to the time and effort put into collaborating. In Colorado where the initiative was used, some improvement was shown (Malcaver & Groginsky, 2011). Increasing the CSAA is unlikely to occur across the board due to the high cost and minimal positive effects expected because students can decide to dropout once they reach the legal age. The increase in age simply keeps the youth in school longer.

A transition program combined with a collaborative effort within the school district tackling both “push” and “pull” factors could be the answer to the dilemma of decreasing high school dropout rates (Warren, & Hamrock, 2010). Only time will tell if the implementation of these and other programs will or will not be effective. One thing is certain, change needs to occur because the country will one day rely on the youth and they need to have the skills to carry out fulfilling lives and be productive citizens in order for the United States to stay on top of the global economy.

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The Study of 12th Grade Student's View of Nature of Science: Classroom Action Research

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Abstract

View of Nature of Science is one of crucial scientific learning goals in several countries. As in the literature, the understanding of Nature of Science can lead students to be a scientific literate persons which allow them to understand science sufficiently for making a decision in daily life. The aim of this study is to investigate student's view of Nature of Science. Thirty students participated in this preliminary study. The View of Nature of Science Two-tier Questionnaire was adapted from the Views of Nature of Science Questionnaire (VNOS-C) and was applied in this study. There are two parts in this questionnaire including rating scale and open-ended questions. The non-structured interview protocol was also used with fifteen students in order to triangulate students' view. Students' responses were categorized into 3 groups including informed, adequate and inadequate view. The study shown that there are 16.67% informed, 20.00% adequate and 63.33% inadequate. In addition, they had misconception in many aspects of NOS. The findings in this study lead to the development of learning unit concerning Nature of Science in science classroom in the second phase of this study. In conclusion, Teachers should concern about students' NOS understanding supporting. They should study on students' prior view of nature of science and learning unit should be designed based on students' prior view of nature of science.

Keywords: nature of science, NOS understanding, view of nature of science, misconception

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Introduction

Nature of science (NOS) is known as a crucial component of scientific literacy that is a principal goal of science education in various countries around the world. (Bybee, 2008) Students cannot have science literacy without NOS view. After finishing school, Students should be able to use their NOS view to distinguish science from pseudoscience and to solve the problems with logical thinking. (Chamrat, 2009)

NOS has been promoted as an important objective for science studying about 100 years. (Central Association of Science and Mathematics Teachers, 1907)

During recent years, it has been included in many national curricula such as USA ;the Next Generation Science Standards, UK; National curriculum in England, Australia; Australian Curriculum, Finland; National Core Curriculum for Preparatory Education for General Upper Secondary Education 2014, Thailand; The Basic Education Core Curriculum etc.

There are various definitions of NOS. It can be generally defined as blending aspects of social studies of science including epistemology, sociology, philosophy and history. The purpose of studying NOS is to answer the questions: What is science? How does science work? How do scientists work as a social group and how does society react to scientific enterprises? (American Association for the Advancement of Science (AAAS), 1993; Lederman, 1992; Abd-El-Khalick, Bell, & Schwartz, 2002; McComas, 2000) Aspects of NOS that are essential for student of basic education are as follow: 1) Scientific knowledge is tentative. 2) Scientific knowledge is based on empirical evidence. 3) Scientific knowledge is subjective. 4) Scientists use imagination and creativity to interpret the data. 5) Social and culture are embedded in scientific knowledge. 6) Scientific theories contrast with laws. 7) Observation is difference from inference.

There are several reasons why the nature of science is important. For instance, NOS supports student to make sense of the science, make a decision on socio-scientific issues rationally, appreciate science as a major element of contemporary culture, understand the norms of the scientific community, and learn science content successfully (Driver, Leach, Millar, & Scott, 1996)

Although it is widely claimed how NOS is essential for student to be scientific literate citizen in the future, there are students who have naïve view in all levels such as elementary, middle school, high school and higher education. (Khishfe & Abd-El-Khalick, 2002; Lin & Chiu, 2004; Khishfe, 2008; Abd-El-Khalick & Lederman, 2000) In addition, the science curriculum tends to define the meaning of NOS as only a scientific process. Science teachers process the misconception in NOS and have a difficulty in integrating NOS into science lessons. In fact, science classes are usually focused only on scientific process and content. Hence, a number of students still have naïve views. In Thailand; moreover, The Program for International Student Assessment (PISA) scores are significantly under the average scores of Organization for Economic Co-operation and Development (OECD). Nearly half of Thai students have scientific literacy in the low level which less than the basic level (level 2) compared to the standard criterion of PISA. (Institute for the Promotion of Teaching Science and Technology; IPST., 2013)

Science teachers and science educator should concern about this problem. To develop the learning unit that support student's view of NOS and integrated content is a way that can be able to improve student's view of NOS. This research is a preliminary study of the unit development. 12th grade student's views of nature of science were investigated in this study. The results in this study will be used to develop the learning unit in the second phase of the study.

Research question

How did 12th grade students have view of nature of science?

Research purpose

The study aims to investigate 12th grade students' view of nature of science for genetics technology learning unit creation in the future.

Participants

The first researcher has chosen study participants by purposive sampling. They are 32 students of 12 th grade at a school in Bangkok, Thailand. This sampling was aimed to select major which is science-mathematics, student who take a biology course in the first semester of the academic year 2014 and students who have various academic achievement.

Research Design

The study utilized a survey research design to permit the researcher to understand the participants' views of nature of science. Qualitative and quantitative approaches have been used to collect and analyze data.

Research Methodology

The View of Nature of Science Two-tier Questionnaire that was adapted from the Views of Nature of Science Questionnaire (VNOS-C) and the non-structured interview protocol were conducted in order to collect students' view of nature of science. The students took 30 minutes to complete the View of Nature of Science Two-tier Questionnaire. The non-structured interview protocol was also used with fifteen students in order to verify students' view of NOS in each group.

Data Collection Tool

The questionnaire was designed by researcher and analyzed validity using Index of Item-Objective Congruence (IOC) value for each questionnaire item. It was separated into two parts. The first part, general information section, aimed to examine initial data of students such as gender, age, biology term grades of academic year 2013. The remainder of the questionnaire mainly focused on investigation of students' view of nature of science and misconception. This part was two tier questionnaire, including a three-point Likert-type scale section (agree, undecided and disagree) and rationale section which let students give your opinion on the answer in the Likert-type scale section. The Likert-type scale section was developed in the following steps;

1. View of nature of science was identified by using the scope from the Basic Education Core Curriculum B.E. 2551 (Ministry of Education, 2008) that was developed by the Institute for the Promotion of Teaching Science and Technology (IPST), Ministry of Education, corresponding to NOS aspects that are useful for basic education student. (Lederman, Abd-El-Khalick, Bell, & Schwartz, 2002; McComas, 2005; Akerson & Volrich, 2006) Next, NOS aspects were chosen by content relation. The NOS aspects in the questionnaire are as follows;

- 1.1 Scientific knowledge is tentative.
- 1.2 Scientific knowledge is based on empirical evidence.
- 1.3 Scientific knowledge is subjective.
2. Items of the questionnaire were created based on students' misconception about NOS from previous research. There are 18 items which included both positive and negative items, shown in table 1.

Table 1 The items in the questionnaire

Aspects of nature of science	Number of Items	Type		No. Items
		+	-	
Tentativeness	3	✓		1, 7, 13
	3		✓	2, 8, 14
Subjectivity	3	✓		3, 9, 15
	3		✓	4, 10, 16
Empirical evidence	3	✓		5, 11, 17
	3		✓	6, 12, 18

Data Analysis

The first step in analyzing the View of Nature of Science Two-tier Questionnaire data was interpreted by considering both Likert-type scale section and rationale section. Next, students' view of NOS was separated to be three group such as informed view, adequate view and inadequate view (Lederman, 2000) by using criterion that were as follows:

1. Informed view group was defined as the group of students who gave their opinion about NOS that were related to scientific community. Students were in this group when they choose the opinion in Likert-type scale section related to scientific community and give rationale in the same way.
2. Adequate view group was defined as the group of students who gave their opinion about NOS that were related to scientific community, but the reason didn't clear.
3. Inadequate view group was defined as the group of students who gave their opinion about NOS and shown rationale that were not related to scientific community.

After that, five students from each group were interviewed to verify that they were in true group. Percent of student in each view of NOS group was investigated.

Results

The questionnaire were created following the structured details identified in the previous section. A validity of collected survey was analyzed using Index of Item-Objective Congruence (IOC) value for each questionnaire item. Numbers of students in each category were presented as percentage in Table 2. Regarding the percentage of the students' perception found that the percentage of the students who hold inadequate view in subjectivity aspect was highest (62.50%). The second was tentativeness aspect (26.96%). The third was the empirically based aspect (23.48%). Students who hold adequate view in tentativeness aspect was highest (25.00%). The second was empirically based aspect (15.62%). The third was subjectivity aspect (15.62%). Students who hold informed view in empirically based aspect was highest (31.25%). The second was tentativeness aspect (12.50%). The third was the empirically based aspect (6.25%).

Table 2

NOS aspects	Percent of students		
	Informed view	Adequate view	Inadequate view
Tentativeness	12.50 %	25.00%	62.50%
Subjectivity	6.25%	15.62%	78.13%
Empirically based	31.25%	18.75%	50.00%

Additionally, the section of rationale was the blank asking for reason why the students choose agreement level in the first section. The researcher looked the meaningful statements in their responses to the rationale part, code them, and put them into categories. Finally, students' misconception about NOS that needs to improve were investigated. The students' responses indicate that they hold misconception in NOS aspect such as tentativeness, subjectivity and empirically based, and they were familiar with cookbook lab. Some direct quotes of the students' answers from the questionnaires were as follow:

Inadequate view

"It's in the book that was proved, so it's always true.

Student# I

"It's law that means the verified knowledge. Therefore, it cannot change."

Student# II

"Scientist use only scientific principle when they interpret the result of experiment."

Student# III

"The cloud model is the best atom representation forever because it constructed based on the experiment in the past."

Student# IV

According to the answer, some student thinks that the scientific knowledge became a law when the knowledge was proved several time. Therefore, it cannot change.

Informed view

“If there is new experiment finding in the future that is different from the law, the laws may change.

Student# V

“The scientist should show the evidence that support the situation. It will be trust.”

Student# VI

“Scientists try to interpret data from experiment by using prior knowledge.”

Student# VII

“We should check the resource of disaster warning in social media to verify the data. It may just be rumor which is not supported by the evidences.”

Student# VIII

According to the answer, some student has view of NOS that relate to scientific community.

Conclusion and Discussion

This research aims to study 12 th grade students' view of nature of science in a school, Bangkok, Thailand. According to the questionnaire result, the most of student hold inadequate view in aspects such as tentativeness, subjectivity, empirically based. In addition, they had misconception in aspects of NOS. For example, knowledge become law, law cannot change, scientist use only scientific principle in experiment interpretation, scientist's word is always trust. All these results correspond to the researches and studies from Thailand and other countries. In Thailand, Pattamapongsa (2012) studied high school students' view of NOS in photosynthesis content. The results found that there are many students had the misconception in several NOS aspect . In addition, Mahalee and Faikhamta (2010) used an open-ended questionnaire and semi-structured interview to study seventh grade students' view of NOS. The result shown that a number of student more than 50% had misconception and didn't understand NOS. Moreover, the researches from other countries had revealed the results in the same way. Kang, Scharmann and Noh (2005) investigated students' views on nature of science in Korea. The result shown that student in 6th, 8th, and 10th grade still need further development of their views on the NOS.

Implication

Nature of science is an important part of scientific literacy; however, the research indicates that there are a lot of students who didn't have view of NOS that related to scientific community. Therefore, it leads to the development of learning unit concerning nature of science in science classroom. Science teacher should focus on students' prior view of nature of science and create learning unit based on students' prior view of nature of science.

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