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A special edition devoted to the
Sixth I-SEEC Conference, Thailand

Guest Editors
Darrell Fisher, Sornchai Mungthaisong & Supatra Wanpen

PERTANIKA JOURNALS

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Journal of Social Sciences & Humanities
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About the Journal

Overview

Pertanika Journal of Social Sciences & Humanities (JSSH) is the official journal of Universiti Putra Malaysia published by UPM Press. It is an open-access online scientific journal which is free of charge. It publishes the scientific outputs. It neither accepts nor commissions third party content.

Recognized internationally as the leading peer-reviewed interdisciplinary journal devoted to the publication of original papers, it serves as a forum for practical approaches to improving quality in issues pertaining to social and behavioural sciences as well as the humanities.

JSSH is a **quarterly** (*March, June, September* and *December*) periodical that considers for publication original articles as per its scope. The journal publishes in **English** and it is open to authors around the world regardless of the nationality.

The Journal is available world-wide.

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Pertanika Journal of Social Sciences & Humanities aims to develop as a pioneer journal for the social sciences with a focus on emerging issues pertaining to the social and behavioural sciences as well as the humanities.

Areas relevant to the scope of the journal include Social Sciences—Accounting, anthropology, Archaeology and history, Architecture and habitat, Consumer and family economics, Economics, Education, Finance, Geography, Law, Management studies, Media and communication studies, Political sciences and public policy, Population studies, Psychology, Sociology, Technology management, Tourism; Humanities—Arts and culture, Dance, Historical and civilisation studies, Language and Linguistics, Literature, Music, Philosophy, Religious studies, Sports.

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Pertanika was founded in 1978. A decision was made in 1992 to streamline Pertanika into three journals as Journal of Tropical Agricultural Science, Journal of Science & Technology, and **Journal of Social Sciences & Humanities** to meet the need for specialised journals in areas of study aligned with the interdisciplinary strengths of the university.

After almost 25 years, as an interdisciplinary Journal of Social Sciences & Humanities, the revamped journal focuses on research in social and behavioural sciences as well as the humanities, particularly in the Asia Pacific region.

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Our goal is to bring the highest quality research to the widest possible audience.

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We aim for excellence, sustained by a responsible and professional approach to journal publishing. Submissions are guaranteed to receive a decision within 14 weeks. The elapsed time from submission to publication for the articles averages 5-6 months.

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Pertanika is almost 38 years old; this accumulated knowledge has resulted the journals being indexed in SCOPUS (Elsevier), Thomson (ISI) Emerging Sources Citation Index (ESCI), Web of Knowledge [BIOSIS & CAB Abstracts], EBSCO, DOAJ, ERA, AGRICOLA, Google Scholar, ISC, TIB, Journal Guide, Citefactor, Cabell's Directories and MyCite.

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Pertanika policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more publications. It prohibits as well publication of any manuscript that has already been published either in whole or substantial part elsewhere. It also does not permit publication of manuscript that has been published in full in Proceedings.

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International Standard Serial Number (ISSN)

An ISSN is an 8-digit code used to identify periodicals such as journals of all kinds and on all media–print and electronic. All Pertanika journals have ISSN as well as an e-ISSN.

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A decision on acceptance or rejection of a manuscript is reached in 3 to 4 months (average 14 weeks). The elapsed time from submission to publication for the articles averages 5-6 months.

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Refer to Pertanika's **INSTRUCTIONS TO AUTHORS** at the back of this journal.

Most scientific papers are prepared according to a format called IMRAD. The term represents the first letters of the words **I**ntroduction, **M**aterials and Methods, **R**esults, **A**nd, **D**iscussion. IMRAD is simply a more 'defined' version of the "IBC" [Introduction, Body, Conclusion] format used for all academic writing. IMRAD indicates a pattern or format rather than a complete list of headings or components of research papers; the missing parts of a paper are: *Title, Authors, Keywords, Abstract, Conclusions*, and *References*. Additionally, some papers include Acknowledgments and Appendices.

The *Introduction* explains the scope and objective of the study in the light of current knowledge on the subject; the *Materials and Methods* describes how the study was conducted; the *Results* section reports what was found in the study; and the *Discussion* section explains meaning and significance of the results and provides suggestions for future directions of research. The manuscript must be prepared according to the Journal's **INSTRUCTIONS TO AUTHORS**.

Editorial process

Authors are notified with an acknowledgement containing a *Manuscript ID* on receipt of a manuscript, and upon the editorial decision regarding publication.

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Pertanika follows a **double-blind peer-review** process. Manuscripts deemed suitable for publication are usually sent to reviewers. Authors are encouraged to suggest names of at least three potential reviewers at the time of submission of their manuscript to Pertanika, but the editors will make the final choice. The editors are not, however, bound by these suggestions.

Notification of the editorial decision is usually provided within ten to fourteen weeks from the receipt of manuscript. Publication of solicited manuscripts is not guaranteed. In most cases, manuscripts are accepted conditionally, pending an author's revision of the material.

As articles are double-blind reviewed, material that might identify authorship of the paper should be placed only on page 2 as described in the first-4 page format in Pertanika's **INSTRUCTIONS TO AUTHORS** given at the back of this journal.

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In the peer-review process, three referees independently evaluate the scientific quality of the submitted manuscripts.

Peer reviewers are experts chosen by journal editors to provide written assessment of the **strengths** and **weaknesses** of written research, with the aim of improving the reporting of research and identifying the most appropriate and highest quality material for the journal.

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2. The chief executive editor sends the article-identifying information having been removed, to three reviewers. Typically, one of these is from the Journal's editorial board. Others are specialists in the subject matter represented by the article. The chief executive editor asks them to complete the review in three weeks.

   Comments to authors are about the appropriateness and adequacy of the theoretical or conceptual framework, literature review, method, results and discussion, and conclusions. Reviewers often include suggestions for strengthening of the manuscript. Comments to the editor are in the nature of the significance of the work and its potential contribution to the literature.

3. The chief executive editor, in consultation with the editor-in-chief, examines the reviews and decides whether to reject the manuscript, invite the author(s) to revise and resubmit the manuscript, or seek additional reviews. Final acceptance or rejection rests with the Edito-in-Chief, who reserves the right to refuse any material for publication. In rare instances, the manuscript is accepted with almost no revision. Almost without exception, reviewers' comments (to the author) are forwarded to the author. If a revision is indicated, the editor provides guidelines for attending to the reviewers' suggestions and perhaps additional advice about revising the manuscript.

4. The authors decide whether and how to address the reviewers' comments and criticisms and the editor's concerns. The authors return a revised version of the paper to the chief executive editor along with specific information describing how they have answered' the concerns of the reviewers and the editor, usually in a tabular form. The author(s) may also submit a rebuttal if there is a need especially when the author disagrees with certain comments provided by reviewer(s).

5. The chief executive editor sends the revised paper out for re-review. Typically, at least one of the original reviewers will be asked to examine the article.

6. When the reviewers have completed their work, the chief executive editor in consultation with the editorial board and the editor-in-chief examine their comments and decide whether the paper is ready to be published, needs another round of revisions, or should be rejected.

7. If the decision is to accept, an acceptance letter is sent to all the author(s), the paper is sent to the Press. The article should appear in print in approximately three months.

   The Publisher ensures that the paper adheres to the correct style (in-text citations, the reference list, and tables are typical areas of concern, clarity, and grammar). The authors are asked to respond to any minor queries by the Publisher. Following these corrections, page proofs are mailed to the corresponding authors for their final approval. At this point, **only essential changes are accepted**. Finally, the article appears in the pages of the Journal and is posted on-line.

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ABSTRACTING/INDEXING

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Preface

This Special Edition of the Pertanika Journal of Social Sciences and Humanities is finally complete. This Issue comprises selected papers from the sixth International Science, Social Sciences, Engineering, and Energy Conference, which took place from 17 to 19 December, 2014 at Prajaktra Design Hotel in Udon Thani, Thailand. The conference was initiated by Rajamangala University of Technology Isan, Sakonnakhon Campus, in December 2008. After this initial conference the number of papers presented has increased every year. The sixth conference was hosted by six Rajabhat Universities, namely, Udon Thani, Loei, Sakon Nakhon, Nakon Ratchasima, Chiang Rai and Pibulsongkram together with the Office of the Higher Education Commission.

During the conference, a total of 110 papers in the fields of Social Sciences and Humanities were presented by participating speakers from Thailand, Lao PDR, Vietnam, Russia, Mexico, Japan, Israel and the United States of America. A total of 14 papers was carefully chosen for this Special Edition. The papers cover current issues of interest in the fields of Education, Social Sciences, Arts and Humanities, Business and Economics and in them, the authors have rigorously examined and discussed recent developments in their respective field.

We very much appreciate the contributions of all the participants at the conference. We also would like to thank the Organising Committee members for their continuous efforts to make this conference a great success. Grateful acknowledgement should be given to the keynote and invited speakers who have made the conference more significant and fruitful. We look forward to seeing more academic cooperation in the future.

The publication of these papers would not have been possible without the support of the field editors nominated from the conference co-hosts, as well as the team of reviewers who carried out the review within such a short time frame. Without their tireless and selfless assistance, this edition would not have been a reality. We wish to express our sincerest gratitude and heartfelt appreciation.

Last but not least, this issue is a concerted effort made possible with the help of Dr. Nayan Kanwal, the Chief Executive Editor of Pertanika Journals, and his dedicated Pertanika team at the Journal Division, UPM, who rendered us their generous guidance and commitment in bringing this edition to print.

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Using and Building Scientific Models to Enhance Elementary-School Teachers' Understanding of Astronomy Phenomena

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ABSTRACT

This study aimed to enhance elementary-school science teachers' understanding of astronomy concepts including season, moon phase and eclipse by using and building scientific models. Twenty-nine elementary-school science teachers from Udon Thani, Thailand participated in this study in 2014. The teaching sequence was designed to address difficult astronomy concepts. Firstly, questions of the astronomy phenomena were asked. After common misconceptions were answered, teachers become dissatisfied with the old conceptions. Then, scientific models were presented and explained. Finally, science teachers built scientific models to explain the astronomy phenomena. The research design of this study was one group pre-test-post-test design. Twenty-five questions from an astronomy test were used to access teachers' understanding of the concepts. The data were analysed using the mean score, percentage, standard deviation and t-test for dependent samples. It was shown that the average percentage of correct answers before and after the teacher training programme were 32% and 58%, respectively. The post-test mean score was significantly higher than the pre-test score. These findings lead to the suggestion that teaching astronomy concepts by building scientific models and using them can be a meaningful learning activity in the science classroom.

Keywords: Elementary-school science teachers, scientific model, astronomy phenomena concepts

INTRODUCTION

Science is generally viewed not only as a body of knowledge, but also as a way of knowing as well as the process of discovering and explaining nature. The study of science branches into two distinct categories: the life sciences and the

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physical sciences. The life sciences include such areas as biology, botany and zoology. The physical sciences include such areas as physics, chemistry and astronomy (Hewitt, 2001). Science education is very important for the development of any nation because it is a part of human daily life. Therefore, science has been a compulsory subject in most countries for a long time (Bennett, Lubben, & Thompson, 2013). Understanding science helps people know how things around them work; everyone needs to have scientific literacy to make decisions and to debate scientific issues (Tasakorn & Pongtabodee, 2005). People who have a strong understanding and ability to understand science tend to hold productive. Learning in science and technology is important for all people in this economically competitive world. However, Osborne and his colleagues (Osborne, Simon, & Collins, 2003) have argued that the continuing decline in the number of students choosing to study science over the past 20 years requires research focusing on students' attitudes towards science. They have raised concerns about the kind of classroom environment and activities that might increase students' interest in studying science in school.

Thailand has undergone many educational reforms and changes. In its national curriculum, general science first appeared in the school curriculum in Buddhist Era 2503 (Thepboriruck, 1976). Policies concerning science and technology development are reflected in the Six National Economic and Social Development Plans (B. E. 2530-2534). Science and technology topics were included in the work-orientated experience, which was one of the five learning experiences taught in the elementary curriculum in B. E. 2521 (Udomsin, Chuaphanich, & Cate, 1990). Due to the rapid changes brought by information and communication technology in the age of globalisation that has made knowledge easily accessible, knowledge is playing an increasingly more powerful role today in developing human resources to obtain the necessary skills and information not only to adapt to changing circumstances but also to spearhead national development (Office of the Education Council [OEC], 2004). The 1997 Constitution and 1999 National Education Act [NEA] of Thailand have provided the framework of guidelines for educational reform in Thailand. The National Education Act of 1999, Section 9, emphasises science and technology, and is based on the principle that all learners are capable of learning and self-development. With respect to the NEA of 1999, science is a compulsory topic in the Thai school curriculum from Grades 1 to 12 and all Thai people have to enrol in compulsory education for nine years, covering six years of primary education and three years of lower secondary education (Yuenyong & Narjaikaew, 2009).

The National Education Act of 1999 emphasises science and technology education and the Institute for the Promotion of Teaching Science and Technology (IPST) plays a major role in establishing standards of teaching/learning science

including teaching/learning approaches, materials and promoting in-service teacher training on teaching/learning science. The Basic Education Curriculum of B. E. 2544 (A. D. 2001) promulgated which content areas of the science strand, out of the eight compulsory strands for basic education, were to be emphasised. The science strand has eight content areas: living things and living processes; life and the environment; matters and properties of matters; forces and motion; energy; processes that shape the earth; astronomy and space; and natures of science and technology (Klongsara & Charlee, 2013). The common practice in elementary schools is to allow science, together with several other subjects, to be taught by a generalist teacher. Elementary-school teachers tend to have limited science subject matter knowledge and low confidence in science teaching, so they tend to focus on topics they are more proficient in and therefore more confident to teach such as biology while skimming through or even avoiding topics they are less familiar with and therefore less confident to teach such as physics, earth science and astronomy (Appleton, 2007). With limited science knowledge and less confidence in teaching science, teachers tend to use teaching strategies that are often not appropriate ways of engaging students to learn science.

An astronomy and space national science curriculum standard was added as a new content area for the elementary-school level in Thailand; it was derived from practices developed in the Basic Education Core Curriculum of B. E. 2544 to present time. Therefore, it is a fairly new area for both elementary-school teachers and students. In Thailand, astronomy and space was found among the seven science sub-strands in the Basic Education Core Curriculum of B. E. 2544 (A. D. 2001) and B. E. 2551 (A. D. 2008). Standard Sc. 7.1 provides that elementary-school students should be able to indicate that the sun, the moon and the stars exist in the sky (Grade 1); to search for and discuss the importance of the sun (Grade 2); to observe and explain the rising and setting of the sun, knowledge related to the moon and the change between daytime and night-time and to determine directions (Grade 3); to construct a model to explain characteristics of the solar system (Grade 4); to observe and explain determination of directions, as well as times and seasons related to the visibility of the stars by using star charts (Grade 5); and in Grade 6, to construct a model and explain the cause of the seasons, phases of the moon, a solar eclipse and a lunar eclipse and to apply this knowledge (Office of Basic Education Commission [OBEC], 2011).

Although astronomy is one of the oldest sciences in human history, astronomy education is not the oldest course for elementary-school teachers in many countries to teach. Research has found that students have several misconceptions about astronomy. Aristotle, a Greek philosopher and scientist, is probably recognized as the originator of the scientific study of the stars. However, a variety of concepts about astronomy held by Aristotle as well as several related to physics, particularly

the concepts of energy, force and motions, are misconceptions. Many students hold Aristotle's concepts, which diverge considerably from those of modern-day scientists and these misconceptions are resistant to change (Sadler, 1998). Because these ideas are grounded in long-held beliefs and personal experience, the change in perception requires students to connect the new knowledge with their existing knowledge structure. Much research has been done into identifying the misconceptions that students bring to the science classroom (Duit & Treagust, 2003). In addition, many school teachers are also hold misconceptions about astronomy. The greatest misconceptions are related to the day-night cycle, moon phases, seasons, position of the sun in the daytime and solar eclipses. In other words, elementary-school teachers may be naïve learners of astronomy (Bektasli, 2013). Therefore, some misconceptions held by students may be transmitted by teachers.

The traditional teaching method that has dominated the teaching of science in both schools and universities is lecturing. The teacher usually describes concepts by talking and writing, while the students listen or take notes (Chang, Jones, & Kunnemeyer, 2002). Research in physics education has shown that many students learn very few concepts of physics when they attend traditional lectures. Traditional lectures as a teaching method do not successfully improve students' understanding of the central concepts of physics (Shaffer & McDermott, 1992; Engelhardt & Beichner, 2004). Some of the strategies that are recommended to enhance the quality of teaching include the use of models to promote student learning. A model is a representation of an object, a phenomenon or an idea (Gilbert, Boulter & Elmer, 2000).

In science education, there are two different types of model consisting of mental models and conceptual models. Mental models are related to what people have in their heads, while conceptual models are devised as tools for teaching understanding of systems, which can be mathematical formulations, analogies, physical diagrams, computer programmes or material objects. Ornek (2008) has categorised conceptual models as mathematical models, computer models, physical models and physics models. Scientific models are broadly used in science to represent a phenomenon that is difficult to observe directly. Students' experiences with scientific models help them to develop their own mental models of scientific concepts (Treagust, Chittleborough, & Mamiala, 2002). Using modelling in science instruction can help learners develop deeper understanding of the subject matter (Shwartz, Rogat, Merritt, & Krajcik, 2007; Shwartz *et al.*, 2009; Krell, Belzen, & Krüger, 2012).

Astronomy education is also recently new for elementary-school science teachers in Thailand. This study aimed to promote elementary-school science teachers' understanding and teaching of astronomy by using and building scientific models through teaching procedures. It gives elementary-school science teachers an idea

of how to teach astronomy with specific teaching sequences and tools. In this study, the researcher examined the astronomy difficulties and needs of elementary-school teachers who participated in the 2013 teacher-training programme and discovered that the instructional design approach would fit the 2014 teacher-training programme utilising six hours for direct instruction. The training programme was designed to use one or two days during the weekend because teachers do not have the time to do learning activities in the classroom on regular school days. Using and building scientific models were examined to see if they enhanced the elementary-school science teachers' level of understanding and confidence in teaching astronomy.

OBJECTIVE

The research objective was to study and compare elementary-school science teachers' understanding of concepts pertaining to the seasons, moon phases and the eclipse phenomenon before and after using and building scientific models through the implementation of a six-hour teacher-training programme.

METHODOLOGY

The pre-experimental research with one group pre-test-post-test design was used in this research. Details of the participants, research instruments and data collection are listed below.

Participants

The participants involved in this study were 29 voluntary elementary-school science teachers from Udon Thani, Thailand in 2014.

The Research Instruments

Instructional approach

The sequence of the instruction was held over six hours, which began with the following procedures:

Introduction of common models in astronomy. There are many models in textbooks and internet sources that can be used to explain astronomy phenomena. Firstly, models of astronomy phenomena with questions regarding the function of the models were introduced (see Fig.1).

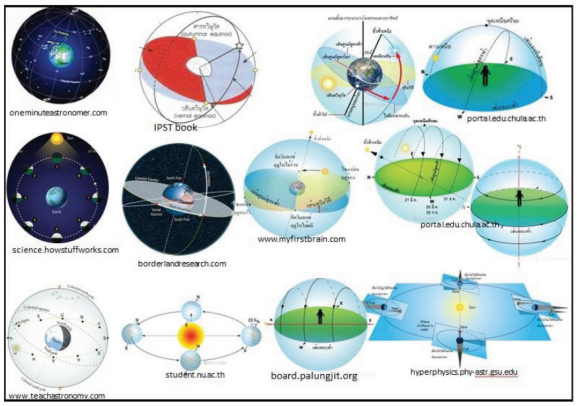

Fig.1: Models in textbooks and internet sources used to explain astronomy phenomena.

Introduction to the seasons and the path of the sun across the sky throughout the year. Previous research findings on misconceptions regarding astronomy highlighted that some teachers believed that the earth is farther away from the sun in winter and closer in summer and that the sun rises exactly in the east and sets exactly in the west every day through a year. These misconceptions were addressed for designing teaching activities. The correct concept regarding this point is that the earth's axis is tilted by 23.5 degrees, so that the northern and the southern hemispheres of the earth get different angles from the sun's direct rays, causing the northern and the southern hemispheres to *get* more and less direct rays, respectively, in the same month. In other words, the northern hemisphere receives more direct rays of the sun than the southern hemisphere in June and the southern hemisphere receives more direct rays of the sun than the northern hemisphere in December. For the teacher-training activity, the pictures showing the seasons and the appearance of the sun in different positions in the sky throughout the year were presented. Questions of what caused the seasons were asked. The sun-earth geometry models and the globe and flash light were used to explain what caused the seasons and the differences in the location of the sun's path across the sky throughout the year. To evaluate teachers' understanding of these concepts, teachers were asked to apply these fundamental principles to create their own models for teaching their students. The models used to explain what caused the seasons are shown in Fig.2(a) and the models created by the teachers are shown in Fig.2(b).

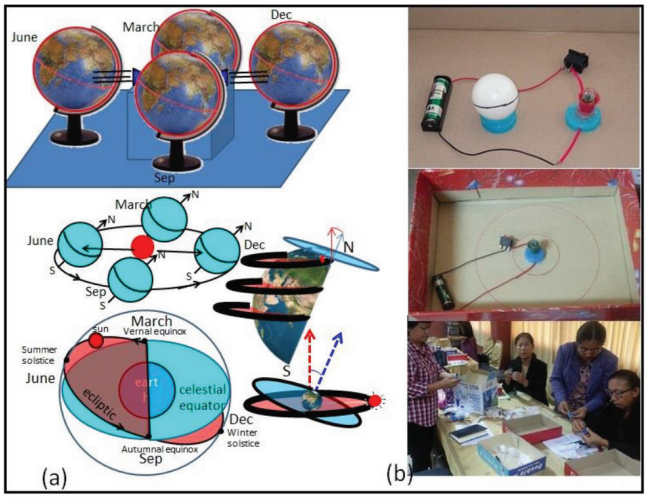

Fig.2: (a) Models used to teach teachers (b) Models created by teachers.

Introduction to the phases of the moon. The common misconception about the phases of the moon is due to incorrect information about the shadow cast on the surface of the moon by the earth. The correct concept is that the different amounts of the illuminated portion of the sun's light scattered off the surface of the moon during the moon's revolution around the earth causes different segments of the moon to be visible at different times of the month. For the teacher-training activity, pictures of the phases of the moon were shared as follows: new moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, last quarter and waning crescent. These were presented with questions of what caused the phases of the moon. The teachers were experienced in how the moon phases were produced. One teacher held a Ping-Pong ball slightly higher than his/her head, while walking in a circle around the observer. The holder was between the light source and the observer. Afterwards, they saw the various illuminated shapes of the moon as it waxed and waned, and then they drew a model to represent the shapes of the moon. The sun-earth-moon geometry models were introduced and discussed. Questions dealing with the time of the moonrise and moonset each day throughout the month were asked. The researcher asked the teachers to create a model to represent the approximate time of the moonrise and moonset each day throughout a month with 30 days. They were told to start with the new moon, when the moon and the sun both rose and set at about the same time. In addition, the moonrise, with an average of about 50 minutes later each day, was introduced. The teachers designed a model on paper, and were then asked to use materials to make the model as a toy that would interest their students. Example models of the moon phases and moonrise and moonset throughout a month with 30 days were created by the teachers (see Fig.3). The units in Thai including 'mong chao', 'bai mong', 'toom' and 'tee' were introduced, which gave the teachers time to think of how they were related to the phases of the moon. They began to see the time of the moonrise as follows: the moon between the new moon and the first quarter (waxing crescent) would rise from about 1 to 6 'mong chao' (about 7 am to 12 noon); the moon between the first quarter and the full moon (waxing gibbous) would rise from about 1 to 6 'bai mong' (about 1 pm to 6 pm); the moon between the full moon and the last quarter (waning gibbous) would rise from about 1 to 6 'toom' (about 7 pm to 12 midnight); and the moon between the last quarter and the new moon (waning crescent) would rise about 1 to 6 'tee' (about 1 to 6 am).

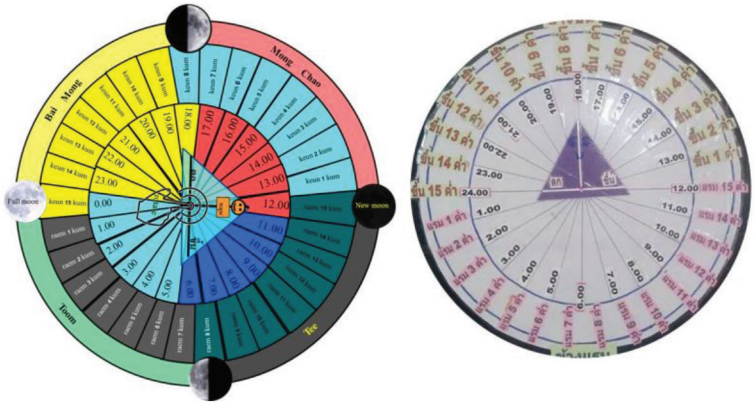

Fig.3: An example model of the moon phases, moonrise and moonset throughout a month with 30 days.

Introduction to the phenomenon of the eclipse. The sun-earth-moon geometry model was continuously used to explain how the lunar and solar eclipse was caused. With this model, teachers might think that the moon would move into the earth's shadow 12 times a year and that the sun would move into the moon's shadow 12 times a year. However, an eclipse occurs an average of about one or two times every one or two years. The teachers were asked to find how the sun, the earth and the moon are related in causing times and seasons. Then, the sun-earth-moon geometry models (see Fig.4) were presented to explain how an eclipse occurs.

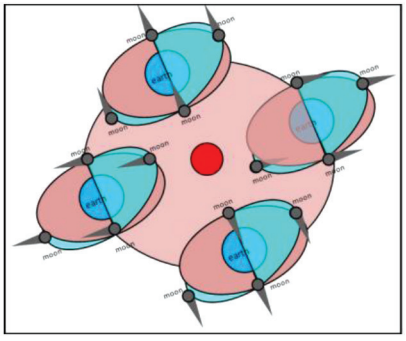

Fig.4: A model representing the ecliptic plane.

Instructional materials

Based on the findings of the 2013 teacher-training programme, it was thought best for this study to use the astronomy concepts of the seasons, the position of the sun during the daytime throughout a year and the phases of the moon (including moonrise and moonset times). Material sets used consisted of a flash light and an earth model for demonstration; 2.5 volt (V) electric

bulbs, wires, 1.5 V dry cells, pieces of white cardboard paper, degree semi-circle meters, pencils, Ping-Pong balls, scissors and compasses to build the models.

The conceptual test

Twenty-five multiple-choice questions with five possible answers were used to address the teachers' understanding of astronomy concepts including the seasons and the path of the sun across the sky throughout a year, the moon phases and moonrise-moonset times and the phenomenon of the eclipse.

Data Collection

For collecting data**,** 25 multiple-choice questions with five possible answers were used to address the teachers' understanding of astronomy concepts. The data were analysed using mean, standard deviation, percentage and a dependent t-test.

RESULTS

This section focusses on the evaluation of elementary-school teachers' understanding of astronomy before and after using and building scientific models throughout the instructional time. The 25-item multiple-choice questionnaire was administered to 29 elementary-school science teachers.

Analysis of Astronomy Conception

Fig.5 displays the average percentage of correct answers among the elementary-school science teachers on the pre-test and post-test. The elementary-school science teachers' performance on the concepts regarding the seasons, the moon phases and eclipses is described.

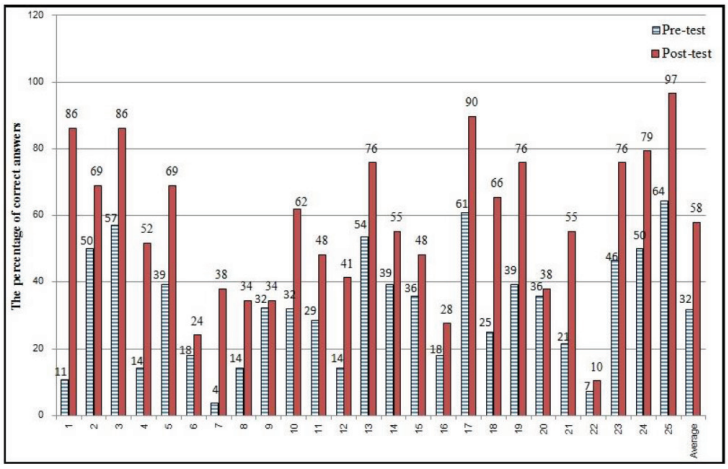

Fig.5: Percentage of teachers answering correctly before and after the instruction.

The seasons and the path of the sun across the sky throughout the year.

Questions 3, 4, 5, 6 and 7 dealt with the concept of the seasons. Questions 3, 4 and 7 were about the seasons in the northern and the southern hemisphere while Questions 5 and 6 were about what caused the seasons. Fig.5 shows that the average performance of the teachers showed an increase in the percentage of correct responses between the pre-test and the post-test for all four questions. Before the instruction, the common misconception held by the elementary-school science teachers, as supported by previous research findings, was that the earth's seasons are caused by the distance of the earth from the sun. In addition, the teachers could not understand the model depicting the seasons throughout the year. However, after the instruction they could create their own models that could be used to teach their students.

Questions 1, 2, 8, 9, 10 and 11 were on concepts regarding the path of the sun in the sky throughout the year. It was noticed that the elementary-school teachers had quite a low score on the pre-test. After the instruction using the models they had made, their performance on the post-test was quite good. However, the percentage of correct answers to Question 8, which was on the relationship between the location of the sun's path across the sky and the seasons, was not as *high* as for the others.

The moon phases.

Questions 13, 14, 22 and 23 were on how the moon phases occurred and the shape of the illuminated portion of the moon. In questions 13, 14 and 23, the teachers performed quite well both before and after the training. They seemed to know that the shape of the illuminated portion of the moon appears the same over the night. However, their performance on the pre- and post-test for Question 22, which was about the causes of the phases of the moon, was low. Many teachers still believed that the phases of the moon are caused by the earth's shadow.

Questions 12, 15, 26 and 17 were about the position of the moon in the sky throughout the month. In Thai context, the Thai lunar calendar (the Buddhist calendar) is used for calculating lunar-regulated holy days. Therefore, these questions were about the position of the moon in the sky according to the Thai lunar calendar. In a month, there are 15 days of the waxing moon, known in Thai as 'keun 1 (neung) kum - keun 15 (sib ha) kum', and 15 or 14 days of the waning moon, known in Thai as 'raem 1 kum - raem 15 or 14 kum'. The teachers' answers showed that they already knew that on the day of the new moon, the moon rises at sunrise and sets at sunset (Question 17), but that the moon is not seen on the day of the new moon. However, their performance on the other questions was not as good as for Question 7. After the teaching session, however, the average number of correct responses increased.

Questions 18, 19, 20 and 21 were about the time of the moonrise and moonset each day throughout the month. The average percentage of the correct responses to Questions 18, 19 and 21 was over 50%

after the teaching session. However, the number of correct responses to Question 20 was not high. All questions in this area were about the time of the moonrise except for Question 20, which was about the time of the moonset. The attracted answer from the teachers' responses was the time of the moonrise.

The eclipses.

Questions 24 and 25 were about how an eclipse occurred. The teachers performed quite well both before and after the teaching session. These two questions were straightforward questions taken directly from textbooks.

Comparison of Teachers' Performances on the Pre-Test and Post-Test

To analyse the teachers' understanding of the concepts of astronomy before and after using and building scientific models in the teacher-training programme, a comparison of their performance on the test before and after the teaching session was made. The average of the teachers' scores before and after their participation in the teaching session was determined. To check whether the research teaching approach promoted better conceptual understanding of astronomy topics, the pre- and post-test scores were compared (see Table 1).

TABLE 1
Mean Scores (M), Standard Deviations (SD), Percentage and p-values of the Pre- and Post-Test Results of the Test (25 items) Taken by the Elementary-School Science Teachers

	$\overline{X}$	S.D.	%	t	*p* (Sig.)
Pre-test	7.95	3.59	31.80	6.88	0.000
Post-test	14.45	4.72	57.80		

According to the teachers' responses on the test, it was notable that their performance was significantly better after the teaching session ($p < 0.01$). The post-test means score was greater than the pre-test score at a significance level of α=0.01. It can be concluded that the elementary-school science teachers who participated in the training programme had a better understanding of astronomy concepts after participating in the instruction regarding the using and building of the scientific models.

CONCLUSION AND DISCUSSION

This research aimed to study and compare elementary-school science teachers' understanding of concepts of astronomy, the teaching of which is a new experience for elementary-school science teachers in Thailand, before and after using and building scientific models through a six-hour teacher-training programme. The results of the elementary-school science teachers' understanding of the seasons, phases of the moon and the phenomenon of the eclipse showed that the misconceptions they held corresponded with those highlighted in other research findings (Sadler, 1998; Bektasli, 2013), supporting the idea that these are common misconceptions related to astronomy. Before the training programme, the most common misconception regarding the seasons, moon phases and eclipses held by the elementary-school teachers were: the earth's seasons are caused by the distance of the earth from the sun; the phases of the

moon are caused by the earth's shadow; and *the plane of the earth's orbit* around the *sun* lies in the same plane as the *moon's orbit* around the *earth.* Research has found that using traditional teaching methods might not be sufficient to correct those misconceptions (Sadler, 1998) because these ideas are grounded in long-held beliefs and personal experience. In addition, if the teachers hold misconceptions, some of these misconceptions may be transmitted to students by the teachers. Research in science education has highlighted the notion that science elementary-school teachers with limited science knowledge tended to use teaching strategies that are not an appropriate way of engaging students to learn science (Appleton, 2007). Therefore, it is important to develop teaching approaches and teaching strategies that are appropriate in explaining concepts within the context of schools and students. The teacher performance in this research indicates that the teachers had better conceptual understanding of the seasons and the path of the sun across the sky throughout the year, the phases of the moon and eclipses after participating in the instructional curriculum that was designed for them. Furthermore, the teachers had better knowledge of moonrise-moonset times after the teaching session. It might be that the model used to represent this concept in this study was related to Thai time units including 'mong chao', 'bai mong', 'toom' and 'tee', with which the teachers were familiar and therefore they could better appropriate the learning points. Although this concept is excluded in the seven science sub-strands in the Basic Education Core Curriculum of B. E. 2544 (A. D. 2001) and B. E. 2551 (A. D. 2008) for the elementary-school level, it is related to a part of Thai daily life and therefore, might increase students' interest in studying school science because they would appreciate the relevance of the knowledge to their personal lives. In this study, the teachers were able to experience using and building scientific models in direct application, thereby participating in a process of learning that should help them to develop their own mental model of scientific concepts (Treagust, Chittleborough, & Mamiala, 2002). In addition, they had the opportunity to create astronomy models to evaluate their understanding of those astronomy concepts; indeed, the literature recommends that using models in science instruction can help learners develop deeper understanding of subject matter (Shwartz, Rogat, Merritt, & Krajcik, 2007; Shwartz, Rogat, Merritt, & Krajcik, 2009; Krell, Belzen, & Krüger, 2012). Therefore, using and building scientific models can be used to promote elementary-school science teachers' understanding of astronomy.

IMPLICATIONS

This study, using and building scientific models in a teacher-training programme for six hours suffered from time limitation. Most of the participants seemed to have difficulty familiarising themselves with the models, especially the use and function of models within the limited timeline of the

study. The researcher recommends that some general guiding principles about the models should be provided, especially where the teacher has to build models from scratch. In addition, many of the astronomy terms in Thai are not common words. Therefore, those terms should be referred to in both Thai and English. To use this teaching procedure in an elementary classroom, teachers will need more time to conduct learning activities about astronomy for each content area (seasons, phases of the moon, eclipse).

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Guidelines for Sustainable Development of Nanglae Pineapple from Local Wisdom to Creative Economy

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ABSTRACT

The objective of this article is to study the guidelines for the development of the Nanglae pineapple, which is the major economic crop of Chiangrai province and has been granted the geographical symbol of Nanglae, Muang, Chiangrai by the Department of Intellectual Property. A sustainable opportunity for the Nanglae pineapple has been achieved by combining sufficiency economy and creative economy concepts. The Eight, Ninth and Tenth National Economic and Social Development Plans of Thailand have adopted the philosophy of sufficiency economy to promote agriculture. The Eleventh National Economic and Social Development Plan (2012-2016), which is in use today, also adopts sufficiency economy to develop the country with an emphasis on human development to achieve strengthened economic and social security. The government provides fiscal budgets for research and development as well as encouragement of creative economy in every sector. The article ends by offering methods for sustainable development of the Nanglae pineapple and provides examples of products made from the pineapple that successfully utilise the principles of sufficiency economy and creative economy combined to enhance the quality of life of Nanglae farmers.

Keywords: Sufficiency, creativity, Nanglae pineapple, sustainable development

INTRODUCTION

Chiang Rai is the northernmost province of Thailand and it enjoys a mild climate throughout the year. Because of its fertile soil and plentiful water supply, Chiang Rai is suitable for both crop farming and animal husbandry. The major economic crop in this province includes rice, longan, lychee, rubber, coffee, tea and the Nanglae pineapple, a well-known local crop particular to this province (Pim-ubon, 2011).

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In 2006, Nanglae Municipal District, Muang, Chiang Rai requested that the Department of Intellectual Property register Nanglae and Phulae pineapples as the geographical symbol of Nanglae as they have been planted in the district for more than 50 years. The request was granted and developing the pineapples became one of the pilot projects of Nanglae Municipal District, boosting local pride. Other important economic thrusts in the province are its solid waste management project and agricultural eco-tourism. These projects have led to an aggregation of agriculturists including the organic pineapple planting group, the pineapple processing group, the golden fish farming group and the cattle group (The Office of Industrial Economics, 2013). As the major economic crop and the main project of the province, an annual festival of Nanglae and Phulae pinapples is held in their honour by the Nanglae Municipal District in May, during which a large number of Nanglae pineapples are marketed.

As global changes cannot be prevented, particularly in the economic, social, cultural and environmental dimensions, it is necessary to study adaptation possibilities and methods that Nanglae pineapple farmers could employ on order to continue their activities in spite of those changes. It has been found that the farmers may be self-reliant by changing the method of planting from chemical to organic in order to reduce the deterioration of soil. Additionally, they have sufficient experience and knowledge to use agricultural waste from pineapple processing to increase their income such as composting and making pineapple fibre paper (Sitthitho, 2007). Such community strength needs to be supported by both the government and private sectors including the Department of Agriculture, Department of Industrial Promotion, National Innovation Agency, the Thai Chamber of Commerce as well as the government's supporting projects provided for in the Eleventh National Economic and Social Development Plan (2013-2016). Consequently, the development of Nanglae pineapples by the farmers in Nanglae, Muang, Chiang Rai can be sustainable. They can also increase their capacity by expanding local wisdom to creative economy in order to add value to their business and products. This will lead to increased income as well as pride in local identity among the Nanglae people. The methodology used to gather data for this article was to study related literature in order to provide an evaluation of the extent to which existing practices of local wisdom and creative economy are being used.

Sustainable Development and Community Lifestyle

Globalisation has changed the life of human beings, plants and the environment dramatically. There has been an inverse relationship between increasing populations and decreasing resources, leading to the necessity to investigate the production of food crops. It is essential to take into account the sustainability and sufficient living to save natural resources for the

next generations. At the UN Conference on Environment and Development-UNCED in Rio de Janeiro, Brazil in 1992, Agenda21, a Global Action Plan on sustainable development, was finalised in various dimensions including social, economic and environmental dimensions. The main principle of the plan was that present generations are not allowed to decrease the capacity of next generations in achieving their needs of life. This principle has been accepted by the global community with regards to the three main dimensions of sustainable development, namely, society, economy and the environment, as defined below (Panchan, 2013).

Social dimension. Sustainable development improves the quality of life, education and safety of life and property of all peoples. In addition, the community must practise good governance, where the administration of resources is efficient and transparent for all to examine and all may access information pertaining to government projects.

Economic dimension. A society with sustainable development is one that has a stable economy and does not rely on outside help. The economy continuously grows whereas the distribution of income is fair and equitable.

Environmental dimension. Environmental quality is a higher standard that people and governments must adhere to in utilisation of valuable but scarce resources. The environmental dimension needs to be considered as a cost of production.

If the integrated development of these three dimensions is in balance, sustainability will follow, providing a better life for the next generations.

For Nanglae pineapple planting in Pasangwiwat Village, Nanglae, Chiang Rai, to be in accordance with the sustainability guidelines outlined in the Global Action Plan, the starting point could be eco-friendly planting that reduces the use of chemicals as given in the principles of Good Agricultural Practice: GAP. Moreover, farmers may plan the area to be cultivated appropriately as well as use cover crop to improve soil fertility. They may also reduce the use of chemical fertilisers. They have already learnt to compost weeds and pineapple stalks instead of burning them in order to reduce pollution and soil degradation. Such a community lifestyle, which adopts eco-friendly planting effectively, can result in sustainable development.

Fig.1: Sustainability relationship.
Source: sustainable.org.

Sufficiency Economy

Launched by His Majesty, King Bhumibol Adulyadej during a convocation ceremony at Kasetsart University in 1974, sufficiency economy consists of five principles that comprise three components and two conditions.

The three constituents include moderation, reasonableness and self-immunity, which are harnessed by the two underlying conditions of knowledge and morality.

1. Moderation: Do whatever is necessary to practise moderation and match work to core competencies. Choose a suitable business size and practise self-awareness.
2. Reasonableness: Use all equipment and machines with reasonable consideration. Employ local workers and use local materials.
3. Self-immunity: Be concerned about risk management and diversification. Create a variety of products. Cooperate with the community and form networks with local businesses for distribution of materials.

Creative Economy

The United Kingdom initiated creative economy in manufacturing industrial products created through local wisdom. The major principle of creative economy is that it is an economic concept based on knowledge, education, creativity, intellectual property and technology and it links with modern culture to discover a selling point. The Republic of Korea is an example of creative economy as its films, songs and other products are widely popular across the globe today (Santana, 2013).

Accordance of Creative Economy with Sufficiency Economy

The Eleventh National Economic and Social Development Plan (2012-2016) has emphasised the wellbeing of citizens by improving capacity in production nation-wide. The plan also adapts the philosophy of sufficiency economy combined with the use of innovation and technology to run economic activities through creative economy. Emphasis is put on the value added to products or services of business that have potential to create products in order to generate growth and development of creative economy. The government has established Thailand Creative & Design Center and the Office of Knowledge Management and Development (Public Organisation) to be responsible for providing knowledge of creative economy and to promote creative industries as the major mechanism to drive the Thai economy.

In line with the principles of sufficiency economy, creative economy has demonstrated consistency in terms of four foundational elements including creative generation, creative industry, creative space and creative cooperation. This trend of business administration based on creative economy was derived from concepts developed by John Hawkins in his

book titled 'The Creative Economy: How People Make Money from Ideas', which led to ideas on how individual creativity combined with Thailand's enigmatic culture and unique flora and fauna can bring about value creation (Buakao, 2010).

Role of Government, Private Sector and Community in Promoting Value of Pineapples

Each government sector has a different role in promoting sustainability of Nanglae pineapples. The responsibility of the Department of Agriculture is to educate agriculturists on agricultural safety while the Department of Industrial Promotion encourages production beyond household products to provide a sufficient amount of distribution. In addition, provincial organisations have roles to support the planting and processing of Nanglae pineapples to make them provincial products and to set a budget for public relations and increasing its capacity of production to support the growth of the ASEAN community. It is predicted that output of agro-industrial products has grown higher than 20% (Ministry of Industry, 2013). From data collected on the value chain of pineapples, it was found that all parts of the pineapple can generate growth for Thailand's economy. For example, pineapple juice may be offered as ready to drink or in concentrate form due to its unique sweet and sour taste. For the enzyme production industry, pineapple as a source of bromelain is often used as a clarifying agent in juice processing as well as an ingredient in meat tenderisers.

The Chiangrai Chamber of Commerce plays the role of promoting the production of pineapples through public relations and business matching for pineapple products such as fresh, fresh-cut and processed pineapples to compete with foreign markets. The main markets are in Asia and the Middle East. This, in addition to its world-famous tea and coffee, can boost the economic growth of Chiang Rai.

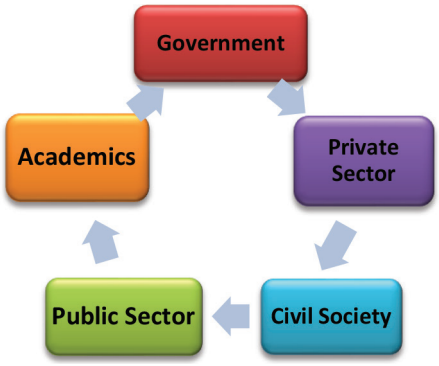

Fig.2: Pattern of sustainability from cooperation.
Source: Poonpattaracheewin (2013)

At the forefront in the drive to promote and grow creative economy is the government sector consisting of political and government officials. Political officials should have clear policies and a development strategy to lead Thailand to be 'the country of creative economy'. They should also declare the development of creative economy as the national agenda for the continuation of practices despite political changes that may arise. Apart from national politics, local politics is considered an important mechanism for successful policy implementation. Consequently, it is necessary to encourage local politics to take an active role in local development to boost creative economy. Government officials can promote cooperation among government organisations in different ministries in order to incorporate development strategies for creative economy in Thailand in ministry policies and events. These strategies can be channelled to departments, regional agencies and local administration within the ministries.

The private sector is one of the major mechanisms in the growth of creative economy. First, it should have a staff development plan for creative work by providing information on staff requirements for the academic sector to design an appropriate curriculum. The private sector should also guarantee job placements for those who meet the requirements agreed on by the academic and the private sectors. Second, the private sector should build corporate social responsibility networks consisting of socially responsible businesses to set up social projects. Each network can choose a project plan and presentation that it wants to support from the development strategy in order to develop Thailand as a creative economic country. For example, a network can provide funds for a community to buy computers or to pay for telecommunication services for the community. They can also support training staff and provide a budget for the public sector.

The major roles of the academic sector, which consists of scholars from educational institutes and independent scholars, in driving the development strategy for a creative economy are to develop human resources in creative work and to change teaching methodology to improve the creativity of students in all fields of study. Additionally, the academic sector has a role to create methods to develop people in the community so that they can improve their local identity as a locale known for creative products and services.

Civil society, which is closer and more familiar with the community and its needs than government agencies, can be the leader in implementing some policies. This can lead to opportunities to gain more support from the public. The final mechanism is representatives from the public sector; this is a key mechanism for these plans to succeed. Community creative ambassadors must be trained to convey the concept of creative economy and its application in daily life to the community. This mechanism can help a community learn and embrace the changes that are needed naturally (Poonpataracheewin, 2013).

An Example of Job Creation from the Consistency of Sufficiency Economy and Creative Economy

The Department of Agriculture and Petchburi Provincial Agricultural Extension Office cooperated to develop a new species of pineapple. The outstanding characteristic of this species is that the fruitlet can be removed easily. The consumer does not need to peel the skin, but may eat the fruit in the same way custard apples are eaten. Farmers may earn a higher income from this species as its price has increased to 150 Baht per kilogram. It has also become the pride of the community, generating income and the acquisition of learning resources.

CONCLUSION

Regarding the guidelines for the sustainable development of Nanglae pineapples planted in Nang Lae, Muang, Chiang Rai, the author agrees that sustainability focusses on the balanced use of resources of the present generation and that their awareness of the need to preserve those resources for the use of the next generations to live a normal life is vital. Nanglae pineapples should be studied in order to present them to reflect the lifestyle of the community that is at the same time linked to local wisdom and value creation. The development of these pineapples leads to stability, self-reliance and pride in being producers of the famous Nanglae pineapple while complying with the green policy for global sustainability. Thus, sufficiency economy and creative economy, which the Thai government has included in the Eleventh National Economic and Social Development Plan (2012-2016), are consistent, and combined, they increase opportunities for improving community products in order to offer greater value and benefit beginning with a steady income for Nanglae pineapple farmers.

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Participatory Action Research on Product Development of Seasoning Powder Production and Marketing in Yangloan Village, Kokphu Sub-district, Phuphan District, Sakonnakhon

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ABSTRACT

The objectives of this Participatory Action Research (PAR) were to discover the needs and problems affecting production and marketing development of a seasoning powder product; to investigate guidelines for its development, production and marketing according to the needs of the networking community; and to evaluate the processes of planning, acting, observing and reflecting undertaken in its development and production. The target area was the Inpang Network at Yangloan village, Phuphan district, Sakonnakhon. The participants were four researchers, 10 local researchers and 20 key informants. The duration of the study was eight months. The results of the study indicated that the problems affecting the development of the seasoning powder occurred in its production and marketing stages. Therefore, there is a need to improve production by using more or better equipment in order to save energy in the stage of raw material preparation. Also, there is a need to seek more raw materials. The new product developed was an improved vegetarian seasoning powder and a new brand was created for its marketing development. A marketing channel was established via social media with the launch of the Yangloan webpage and a Facebook account for the product. Food recipes and demonstrations were uploaded to YouTube. Booths selling local-wisdom products were provided with public relations materials in the form of a big cut-out at the Kampoem intersection in Phupahan district, Sakonnakhon. A cut-out was also placed at the entrance of the enterprise's work premise. The local researchers were satisfied with their participation in the product development process. The sales volume was significantly higher compared with that of the same period the previous year.

Keywords: Powder product, Yangloan

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INTRODUCTION

The results of a study on a new generation and local development from 2007 to 2010 (Vaseenonta, Chaochaikhong, & Khunwong, 2009) indicated how new generations may live successfully in local areas in many places of the Inpang network of Udornthani, Mukdaharn and Kalasin provinces. Especially in Sakonnakhon, the members of the Inpang network and the new generation living there have improved themselves. They have tried to create an economic foundation via community product development with local wisdom, local labour and local resources for sustainable development to stay on in the community. The Inpang network at Yangloan village at Kokphu sub-district, Phuphan district have applied local wisdom to create community products by blending sweet, oily and sour vegetables called seasoning powder or Phong Nua. It can be used in all recipes to add flavour to dishes, making them more delicious. The Inpang network community signified the possibility of improving the seasoning powder product with the participation of the new generation. They could use local community wisdom. However, the seasoning powder has faced many problems such as difficulty in procuring raw materials. This meant the powder was not sustainable and could not reach consumers. The standard of the raw materials and the acceptance of the product were additional problems. The product is recognised only by people who are concerned about their health. It was believed that the product could be improved to extend demand as well as to improve its taste. Creating demand for the product was a goal of the people involved in this project. It is debatable if the seasoning powder will eventually be accepted by consumers and the market. If the product can generate a viable income, then its future will be stable. In terms of its benefits, consumption of this seasoning powder seems to have a positive effect on health. Sakonakhon Rajabhat University, as a university in the vicinity, took it upon itself to conduct Participatory Action Research to serve local needs for production development and to help the local community product gain marketing acceptance. This could lead to a fixed income for the community in the long run.

METHODOLOGY

Participatory Action Research was conducted by the people involved in producing and marketing the seasoning powder of the Inpang network. The concept of PAR as developed by Kemmis and Mctaggart was applied in this study (Suwimon Wongwanit, 2007, p. 23). The processes were Plan, Act, Observe and Reflect.

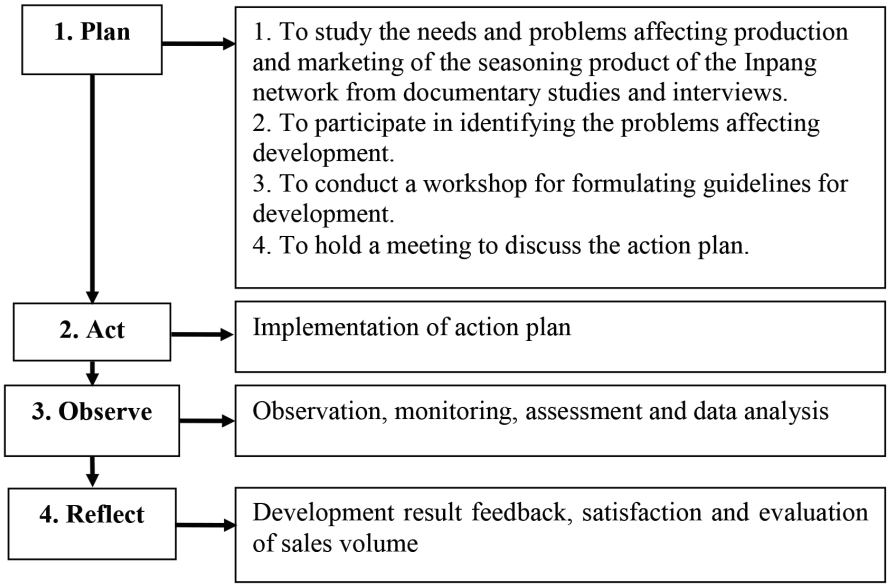

Fig.1: Methodological framework.

Conceptual Framework

This consisted of production and marketing development.

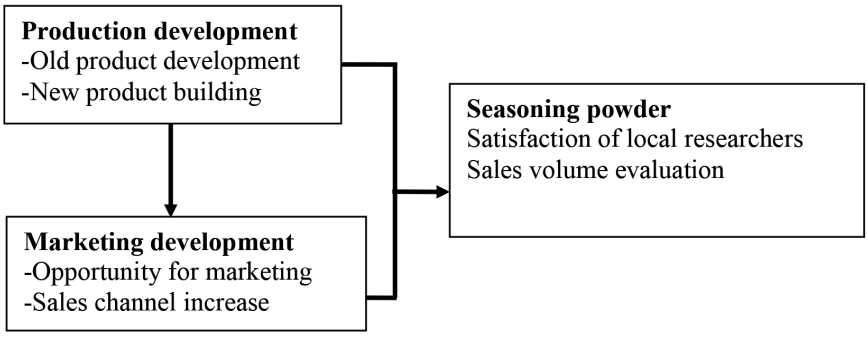

Fig.2: Conceptual framework.

Research Area

The target area was the Inpang network at Yangloan village, Kokphu sub-district, Phuphan district, Sakonnakorn.

Participants

The participants were four researchers, 10 local researchers and 20 key informants.

Duration

The duration of the study was from October 2013 to May 2014, a period of eight months.

Objectives of the Study

The objectives of the study were to discover the needs and problems affecting

production and marketing development of a seasoning powder product; to investigate guidelines for its development, production and marketing according to the needs of the networking community; and to evaluate the processes of planning, acting, observing and reflecting undertaken in its development and production.

Expected Benefits of the Study

The following were the expected benefits of the study:

1. The seasoning powder of the Inpang network would be improved for production and marketing development.
2. The new generation who cooperated with locals in the product development of the Inpang network may live in the area.
3. The PAR process would be applied for improving the seasoning powder of the Inpang network.
4. Guidelines for improving the new product of the Inpang network would be provided.

RESULTS

The study of the needs and problems affecting the production and marketing development of the Inpang network indicated that the seasoning powder of Yangloan village, Kokphu sub-district, Phuphan District, Sakonnakorn was improved at different levels. The organisers and the leaders of the network needed to improve the seasoning powder in its production and marketing stages to ensure its success in the future.

The following problems were detected: packaging was inadequate; the product needed acceptance building; and lack of knowledge of how to solve problems related to the production and marketing of the product. Problems related to the product were: maintenance of product quality; product acceptance building; and discovering the potential of the product.

Problems related to packaging were: the obviousness of the package and the image of the product. The marketing problems were: creating product acceptance and the sales channels. The problem concerning raw materials was possible insufficient local vegetables in the future. There was also a problem concerning availability of raw materials and another to do with lack of knowledge of the characteristics of the raw materials such as ageing.

The needs for development involved production and marketing development. Production improvement involved increasing production potential and new product development. Marketing improvement dealt with marketing channel increase and public relations.

The investigation of guidelines and directions for production and marketing development began with holding workshops. Production consisted of making provisions for saving energy in raw material preparation and seeking more raw materials. This could increase production and create a new vegetarian seasoning powder.

Marketing consisted of creating a new brand for the seasoning powder and increasing marketing channels. This could create a diverse and appealing brand. Diverse marketing channels could make sales convenient by taking advantage of rapid technological changes. Public relations consisted of placing big cut-outs and creating presence for the product through social media such as Facebook and YouTube, where videos of cooking demonstrations using the seasoning powder were uploaded.

Production development began with acquiring knowledge of vegetarian seasoning powders and then creating a standard for one that was unique. A group of housewives sourced suitable areas for planting the raw materials and contacted the Inpang network members for more materials especially bananas for adding to the seasoning powder. Many new delicious dishes using the seasoning were added to the menu. The product was made to comply with the standards of the food and drug organisation. There was an increase in production of one raw material, sugar cane, with the use of a gliding machine. The gliding machine was sponsored by the Industrial Technology Faculty of Sakonnakhon Rajabhat University.

Fig.3: A crude gliding machine was given to the Yangloan Enterprise Seasoning Powder Housewives Group by the President of Sakonnakorn Rajabhat University.

Marketing development enabled an increase in sales channels. More sales booths were provided for local-wisdom products at the Isaan Monn Mung fair organised by Sakonnakhon Rajabhat Univeristy, Provincial Administration Organisation, Nakorn Sakonnakhon Municipality and a number of educational institutions in the Northeastern region. The product sold by the group was 'Nua Vegetables Seasoning Powder'. Public relations using a webpage and Facebook was carried out to create brand recognition for the seasoning powder. New recipes and menus were presented

and demonstrated via YouTube to create demand among consumers. This could allow consumers to diversify their menus. Big cut-outs at the Kampoem intersection in Phuphan District, Sakonnakhon at the entrance to the group's work premise and at the intersection of the Student Development section at Sakonnakhon Rajabhat University were placed for propagandising the seasoning powder.

Fig.4: The new product brand of the housewives' group at Yangloan Village.

Evaluation of the product development indicated the satisfaction of the local researchers with their participation in the project at this high level. There was a significantly high number of purchase orders, leading to a higher sales volume compared with that of the same period the previous year.

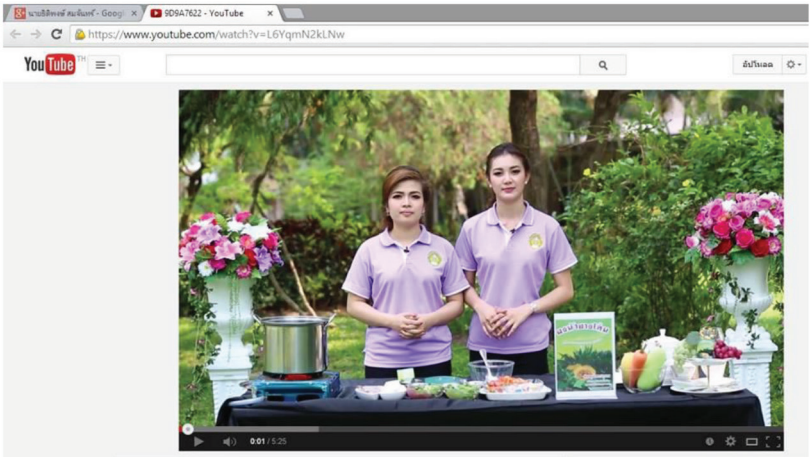

Fig.5: Food recipes and menu sets presented at the seasoning powder food demonstration.

DISCUSSION

The results of the Participatory Action Research (PAR) signified a high chance for growth of the seasoning powder if it continues to gain support. The following points are noted.

Firstly, the PAR was possible due to the collaboration between the researchers and their shared goals. The research team was aware of the need for mutual understanding and had to sacrifice their time in order to provide learning opportunities for one another. This PAR was a good opportunity for effective collaboration among the researchers, which was a good achievement. This outcome is supported by Somchai Chorsawai et al. (2003), who investigated the collaborative development process of a community of the potters in Kaeng sub-district, Muang district, Nakornsawan and reported that the community had benefitted from the PAR process that had used systematic learning. The researchers and the local researchers worked well together, treating one another with respect and fairness and keeping communication clear. This resulted in the appropriate product pattern for value addition in line with the processes of PAR. This brought mutual benefit to both sides and all the researchers were able to learn something of value; the researchers gained from participating in the research process while the local researchers gained from the exposure to proper product development. This mutual understanding allowed for good collaboration.

Secondly, the study exposed the problems related to the production and marketing of the seasoning powder and therefore, remedies could be designed. The problems unearthed had to do with product quality maintenance, product acceptance building and producing potential directions for future growth. Another problem was packaging, which needed improvement for a better presentation and image. The marketing problems revolved around product acceptance and product sales channels. Problems related to raw materials were the insufficient production of local vegetables, the materials not being ready for use and lacking knowledge of the characteristics of the vegetables such as when best to harvest them. Panutda Poonthonglang (2005, Abstract), who studied the development of mat weaving in Pragart village, Banragart sub-district, Bangbor district, Samutprakarn, also highlighted the lack of product knowledge, lack of skills for product improvement, low funds and ineffective management as obstacles to the growth of the cottage industry as a whole. In the case of the group that produced the seasoning powder, these problems were probably due to the fact that they just starting up their small business and had a long way to go in picking up skill, knowledge and experience. For such businesses at the initial point of start-up, more support is needed from the government and private sector for their future.

Thirdly, the investigation of the guidelines and directions for production and marketing development via the

workshop was beneficial for the local researchers. What they learnt was relevant to their real needs. Production needed to take into account the need to save energy for raw material preparation and more resources. This can increase production and create new vegetarian seasoning powders based on prior production knowledge. Rewat Suksikarn (2011) studied the development of shadow puppetry by the community of Pakphoon sub-district, Muang district, Nakhon Si Thammarat and highlighted the need for product improvement to be simplified while retaining the artistry of shadow puppet handicraft. The same applies in this case of a community's involvement in producing seasoning powder. This research also brought benefits to the community in the form of tangible product development. Therefore, this study of a community's real needs for product development does significantly meet the real needs of people.

Fourthly, the results of the study on marketing development indicated an increase in sales channels through sales booths for local-wisdom products. In addition, the main community enterprise product brand was provided via public relations through social media and Facebook. Food recipes and menu sets were presented and demonstrated through YouTube. Moreover, cut-outs were placed in many places as public relations tools to reach consumers, in line with Theeraphong Wasuntadilok's (2003) model for development, which studied the use of modern technology to promote silk and silk product marketing in Bureeram. Modern technology connects people easily and conveniently, and therefore is an expedient marketing tool today.

RECOMMENDATIONS

Several recommendations may be made based on the results of this study. Firstly, the group behind the production of the seasoning powder should plan for the continued improvement of the product to make it possible to reach a wider market and should ensure availability of sufficient raw materials for continued production. The group should learn how to use modern technology in order to be able to reach consumers directly. Secondly, educational institutions should support the efforts of small businesses to improve and market their products. It starts with the transfer of knowledge, implementation of ideas and monitoring of the work that is undertaken. Thirdly, government agencies at the local level should support small-enterprise groups by helping them with public relations. For instance, sales channels can be provided for these enterprises at community festivals.

Several recommendations are made for further study in this area. Firstly, the evaluation research should be long-term, with regular and adequate follow-up for sustainability. Secondly, comparison research should be conducted with other community enterprise groups. The successful groups should be studied as best practices for all to benefit from.

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Challenges of Transforming Introductory Science Classes to Learner-Centered Teaching

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ABSTRACT

In introductory level courses, the learning environment of the large class makes it difficult for teachers to implement methods that facilitate and engage students through interactive pedagogies. In addition, assessment methods tend to align with the mainstream teacher-centred approach. This paper presents an analysis of qualitative data from in-depth interviews with science faculty members at King Mongkut's University of Technology Thonburi (KMUTT), who provided insightful perspectives on teaching improvements. The reflections of these teachers indicated the constraints of department, faculty and course level that challenged the transformation of science education at the university. The discussion proposed that professional learning development was highly required for any initiatives towards change in teaching and assessment practices that would result in meaningful learning by students.

Keywords: Large class, learner-centred teaching, introductory college science courses

INTRODUCTION

In introductory level courses, the learning environment of the large class makes it difficult for teachers to implement methods that facilitate and engage students in the learning process. Even though many higher education institutes have been trying to initiate and promote student learning through interactive pedagogies, centring classes around dialogue and discussions still encounters challenges (Nicol & Boyle, 2003). Teaching non-science major freshman students for whom learning science is unlikely to be the ultimate learning goal seems to deepen such difficulty (Henderson & Dancy, 2007).

Over the past decades, reform in science education has continued to find better answers in teaching that enables

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student to solve contemporary problems with cognitive flexibility, adaptability and creativity rather than by using strict information and rules-based logic (Udovic, Morris, Dickman, Postlethwait, & Wetherwax, 2002). However, most introductory science courses tend to rely on the traditional, old-fashioned approach in delivering the authoritarian presentation of the material. Unfortunately, the learning process that is normally designed with such organised ways of didactic teaching does not effectively foster conceptual understanding or scientific reasoning. It is also unlikely to foster a scientific attitude among students and may even develop students' dislike for science (Shamsudin, Abdullah, & Yaamat, 2013). This concerns not only the quality of cognitive achievement of students but also the development of a positive attitude towards the subject knowledge.

Research Purpose

This paper aimed to identify the current practice of the teaching strategies in introductory college science courses at King Mongkut's University of Technology Thonburi (KMUTT) and to analyse the challenges to transforming instruction to align with outcome-based education.

METHODOLOGY

This research took the format of qualitative research. Data collection was conducted during the year 2014 using the in-depth interview method using the semi-structured questionnaire. The 18 interviewees were purposively selected based on their experience in teaching introductory science courses for non-science major students. Key informants were teachers of the departments of Physics, Mathematics and Chemistry at the Faculty of Science, KMUTT. The sampling did not include teachers from the department of Microbiology because of the difference in the course structure, the smaller class size of lectures and the nature of the subject, which largely requires students to participate in laboratory activities. The data were coded according to the objective of the study, using both data-driven and the inductive reasoning in analysis.

LITERATURE REVIEW

Most large science class teaching reconstructs the course design by following the science education reform pathway. According to Hobson (2001), three significant elements of science education reform include: introducing "conceptual changes" by directly confronting student misconceptions through concrete experiences; integrating "science as inquiry" so that the students view science as a way of knowing; and introducing science in context to make a clear linkage between science and society. Of course, all the elements are based on quality teaching. Currently, there have been initiatives that align with the teaching reconstruction and yield prospective improvements. For example, a three-term, lab-based introductory sequence for non-science

majors of the Workshop Biology project (Udovic, Morris, Dickman, Postlethwait, & Wetherwax, 2002), peer instruction (Crouch & Mazur, 2001; Mazur, 2009), and SCALE-UP project (Beichner *et al.*, 2007).

Among those practices that refocus the concept of learning in science, the main components are active participation in lectures, where students transform into active learners instead of being passive recipients. The continuum of being an active learner could range from simple strategies (think-pair-share, short write, minute paper) to more complex strategies including concept mapping, in-class discussions, peer instruction, role playing and inquiry or problem-based learning. However, among the increasing effort to make a large lecture hall of introductory science classes more interactive, there is a widespread norm that science is delivered as a body of knowledge in a lecture-based format. Such persistence exists even though many research-based instructions find that giving lectures is helpful only for short-term and surface learning and only when the teaching goal is to emphasise on mastery of content knowledge, and not the development of scientific skills (Ebert-May, Brewer, & Allred, 1997).

However, successful lectures are possible with all the essential qualities of good university teaching. Nevertheless, the quality lecture that achieves student learning might work only under certain conditions. Lectures might be considered the best teaching method for learning content and new skills unless the teachers possess a strong working knowledge of scientific content and pedagogy. According to Bain (2004), lectures from highly effective teachers have features of natural critical learning that stimulate students to engage the question critically and generate argument. The effective lecture enables student learning by providing opportunities for interaction and student participation. Also, the well-structured lecture could provide the students with feedback about their learning. For example, even chalk and talk could be considered as a mathematics specific genre of teaching that involves interactive modelling of the solution development process (Wilson & Maclaren, 2013). Artemeva and Fox (2011) described chalk talk as a "situated disciplinary practice" and contended that it can be pedagogically interactive, meaningful and engaging as a way to disciplinary doing and being.

However, based upon student learning, no matter how good the teacher, typical students in a traditionally taught course tend to learn by memorising facts and recipes for problem solving; they do not gain a true understanding (Wieman, Perkins, & Gilbert, 2010). In addition to that, for non-science major students (e.g. engineering students), learning science is unlikely to be their ultimate learning goal and this might result in their engagement. This is especially challenging in large enrollment classes where the teachers are exposed to more diversity of student learning styles and student background.

In response to such a learning environment, teachers require a variety of teaching techniques to elicit student engagement. However, in some courses, building student attitudes and beliefs was possible only after the courses were specially designed for this purpose and the results have proved to be inconsistent in some cases. For example, little change in students' positive incoming attitudes occurred in reformed classroom practices and in classes that were successful at improving student conceptual learning of Physics (Redish & Steinberg, 1999; Handelsman *et al.*, 2004).

RESULTS AND DISCUSSION

The context of teaching introductory science courses at KMUTT as mentioned by these key informants concerns the effective management of a large class teaching. The common experiences involved the enrolment, which could reach hundreds of students; even the smaller sessions varied between 80 and 120 students. Some of the classes served the students of one department, while others had students from two or more departments/faculties (e.g. a mix of students from Civil Engineering and Electrical Engineering or a mix of Civil Engineering students and Industrial Education and Technology students). The mix of student populations was caused by the class schedule management under the registration system of the university.

Some courses divided the large lecture classroom into smaller ones and had several faculty members teaching those parallel sessions. In this paper, the faculty members are referred as a teaching team. The team shared teaching responsibilities and predetermined the teaching plans in order to keep the scope of the subject content manageable and teachable in the given time.

According to the interview, all the teachers spent over 80% of their class time lecturing the subject content. The lecture notes were simply presented using PowerPoint slides projected from a personal computer (PC) or visualiser. More explanations were written to show the thinking process or detail in steps (algorithm). High technology-driven pedagogy was not what the teachers depend on.

The repertoire of content were done by showing examples of objects, simulating and demonstrating experiments. Only a few of the teachers conducted live demonstrations in class. In cases of Physics and Chemistry, most of the informants would present YouTube video demonstrations followed by pair or small-group discussions. Asking the large numbers of students to perform conceptual understanding was only done from time to time but a variety of methods was not used.

Here are the selected responses of the 18 teachers.

My class was lecture-based. My teaching style was simply chalk-and- talk. The only tool used was visualizer. The students were supposed to have class materials in hands and making a note only if they would like to. (Physics)

While lecturing, using visualizer to show how probing Mathematics solutions by steps was hugely more practical. Writing the calculation in paper and visualize it might sound very traditional but it better helped the students to understand its meaning. PowerPoint was not as useful as visualizer in my case. (Mathematics)

My teaching approach was certainly deductive. I usually give lecture to make sure that the students would have a solid understanding of concepts. The given examples were provided to help illustrate the phenomenon. (Mathematics)

My class was lecture-based, demonstration was done from time to time. Examples and case studies were occasionally used to explain the rigid content. (Physics)

Teaching chemistry at an introductory level, for me, was obviously lecture-based, the chemical demonstration kits were sometimes used. There were small-group discussions once in a while. (Chemistry)

Demonstration was used from time to time to give a picture of concepts of Chemistry. (Chemistry)

The objects used in demonstration were simply small and ponderable. (Mathematics)

I used pair discussion-let the students who passed quizzes explain their understanding to their peers. This worked quite well. (Chemistry)

I showed YouTube video, let students discussed in groups and randomly asked students to answer questions. (Physics)

Questions were raised to check whether the students had misconceptions. The voluntary students just handed-up and answered. Sometimes they were randomly called to probe solutions in front of the class. (Chemistry)

In spite of lecture-based teaching, some indicated effort to mix other teaching strategies to help the student understanding. One of the Physics teachers set up the tutorial session apart from the lecture class time (lecture for two hours, tutorial for an hour). The small groups of 8-10 students would practise solving problems with the guidance of the graduate teaching assistants who were available for help. Another tutorial session of the mathematics class was also run but only the teacher himself was in charge of guiding student thinking for the whole class.

Two of the mathematics teachers mentioned the supplementary use of technology to encourage student self-directed learning. The assistive technology included Sketch Pad, a programme that helped students review content and practise solving problems and Peer Wise, a Learning Management System that provides different levels of task difficulty.

Assigning hands-on learning experience was also found in introductory science courses. One of the mathematics teachers mentioned an attempt to include in-class activities based on Plearn (play and learn) to encourage hands-on experience by allowing the students to work in teams and self-construct their knowledge through the object-to-think-with. One of the Physics

and Chemistry teachers assigned hands-on group projects. However, due to the limit of available class sessions of each individual instructor among the teaching team, the student project was flexibly managed outside class time.

I provided tutorial sessions in which the students practise solving Physics problems intensively. The small groups of 8-10 students would practise solving problems with the guidance of the graduate teaching assistants. (Physics)

I usually spent most of the class time lecturing. I tried to conduct group activities to involve students practice in abstract thinking. I applied the concept of Plearn based learning; the students play, have fun and learn through hands-on activities. Sometimes I set up group discussion (up to 10 students), gave them guidelines and had them mark each other's assignment. This way, they would learn that solving mathematics problems sometimes require no rigid single method. (Mathematics)

My lecture was quite content-laden. Besides lecturing, I tried to use Sketch Pad to support the students' learning outside classroom. This would particularly help the students review the course content and practise solving problems according to their pace of learning at the different difficulty levels. (Mathematics)

I assigned the different level of task difficulty in Peer Wise - the Learning Management System of Oakland University. (Mathematics)

Besides lecture time, I presented video demonstration from YouTube, which provided tons of resourceful reference in Physics from distinguished university. Both lecture and demonstration focused on the conceptual knowledge. Showing small objects on visualizer was basically used while giving a talk in certain topics. (Physics)

Only one project was assigned. The purpose of given projects were primarily to train students the teamwork skills. The ability to link the subject knowledge with real-life application was also the main objective. The students must do a piece of work, written report and presentation video. (Physics)

According to their teaching experience, similar reasons were found as factors that promoted the current teaching practice of direct instruction. The factors included the scope of the subject content, the teaching team (in certain courses) and student prior knowledge. These factors formed the teaching environment that maintained traditional lecture-based pedagogies rather than active learning approaches.

Being the introductory and prerequisite subjects for non-science major students, the scope of the content was designated in accordance with the requirements of the specific academic discipline it served. The teachers were unauthorised to design the subject content but had to follow the rule-based scope of the prerequisites. This is similar to any professional courses in which 'must-know' content can predominate the

subject area. Consequently, the introductory science courses tended to focus on the breadth of the content and student learning was widely emphasised at the level of understanding. In order to cover the breadth of the curriculum under the time constraint, the teachers felt that involving the students in activities or discussions in class was a secondary priority to giving a direct lecture. Even though the class activities were ideally good for deeper learning in an authentic way, they were possible only if there was time left over after the lecture proper.

The content seemed overstuffed that breaking down the lecture meant leaving some of the content under the students' responsibility. (Physics)

The topics of subject contents were defined under the requirement of the (engineering or other programs) curriculum and our teaching needed to cover all the basic concepts. (Mathematics)

Pair discussion was used only when there were times left enough. (Chemistry)

I would rather demonstrate live experiment if I had a smaller class and more class time. It was no use to demonstrate without the student participation. (Physics)

The fact that every learner had individual learning styles multiplied the challenge for the teachers when teaching large numbers of students from different programmes. The diversity of these populations was a deep concern among the teachers, who could not be sure of each student's prior knowledge and the teachers indicated this concern as one of the reasons why the direct lecture still dominated most of class time. Even though some of the topic areas in the introductory science courses had already been taught in high school, too many students were not adequately prepared to further their learning in these subjects at the university level. From the teachers' perspective, even though the direct lecture ought to be questioned on its effectiveness, providing step-by-step transmission of knowledge is still a better response to the needs of students with such difficulties.

The prior knowledge of the students whose backgrounds were from vocational education was found insufficient in most cases. The classes that mixed the students from faculties also meant that the wide range of student learning difficulty was more likely to occur. While some students thought the teacher had not taught them anything new, others were struggling to understand those same lessons. (Chemistry)

Even though giving lecture might not sound appealing, it suited the learning situations where wide learning gaps among the students existed. The students with poor or lower knowledge background slowly got information and typically did not respond to the questions and discussions. I tried to give lecture at a moderate pace so that these students were not left behind. However, as I tried to support the needs of at-risk students, the outperform students might feel unnecessary to attend the classes. (Mathematics)

It was hard for many students to participate in classroom discussions. Only a few of more advanced students were likely to raise their hands to answer questions. (Chemistry)

Team teaching mattered because it concerned the justification issue. Individual teachers assumed the responsibility that their students were fairly well-prepared for the exam. Accordingly, teaching in the structured and organised ways of the didactic approach better ensured that all/most of the subject content tested in the exam would be covered in class. The standardisation particularly mattered because the assessment of lessons still emphasised on the measurement of cognitive achievement. Moreover, as the institution and faculty imposed formal examination conditions, each session was subjected to use the same exam as well as the same marking and grading criteria to make sure that the necessary rule-based commitment was fairly adhered to across the team.

I needed to ensure that the students were adequately prepared with basic knowledge once they finished my sessions and transfer their learning to the next topics taught by other teachers. (Physics)

When teaching as a team, each instructor had teaching commitments which mostly concerned the coverage of subject content to be tested. (Mathematics)

What we taught must align with what the students were going to be measured by test. (Chemistry)

As the teaching team, we shared the teaching topics and had to manage the individual class time according to our standard setting. (Mathematics)

Even though the subject was very much content laden, each instructor needed to cover it within his/her session so that the students would not miss what they were going to find in the exam. (Chemistry)

CONCLUSION AND IMPLICATIONS

The current teaching practices of these faculty members reflected that student learning in introductory science courses is emphasised in the breadth of the content. The dominant teaching practice found was lecture-based instruction. The teachers' perspective indicated the pattern of beliefs that included the scope of subject content, team teaching and student prior knowledge, all of which fostered the existence of the teacher-centred didactic lecture. To criticise this persistence, Wieman, Perkins and Gilbert (2010) pointed out that one of the major problems in shifting to learner-centred teaching was the existing norms that were already established, limiting how science could be taught and what it meant to learn science. In this case, the pattern of beliefs among the teachers could arguably be considered as so-called norms. The teaching environment was claimed as the condition that fostered lecture-based pedagogies rather than active learning approaches. In other words, such contexts strengthened the teachers' belief and hindered their efforts to transform student learning experience.

However, the weak points of lecturing should not be taken for granted. Enabling the students to develop higher order thinking during lectures in class is possible. According to Bain (2004), lectures did not always promote ineffective student learning. Lectures could have features of natural critical learning which stimulated student thinking e.g. to question critically and generate argument. However, such effective lecturing required a certain quality of instructional strategy and was possible when lecturing did not focus on transmitting content knowledge to serve exam-orientated assessment. In order to transform this habit of mind of the teachers, teaching development at not only the individual level but also the institutional level must be addressed.

As the institution and faculty imposed the rules and standards that faculty members were to follow, the change initiatives towards teaching improvement must involve support from the institutional and departmental levels. For example, the redesign of the scope of content and the revision of formal examination conditions, marking and grading criteria must all be revisited. For the individual teacher, each should be able to customise classroom management to facilitate the expected learning outcomes.

Teachers are experts of subject content but academic expertise does not ensure successful pedagogy. To come up with productive pedagogy, teachers should possess qualified teaching skills aligned with a new paradigm of assessment. The supportive mechanism to foster such faculty development is crucial in creating a culture that encourages a growth mindset among teachers as adult learners.

Good teaching is not only about cognitive achievement; it also requires a positive attitude and inspiring learning experiences. In large science courses, the high enrolment of non-science majors means teachers must handle a diverse student population with different prior knowledge. It is even more challenging to create meaningful learning for students for whom learning science is unlikely to be the ultimate learning goal. Introductory science courses which are usually designed with a rigid scope of content and involve the measurement of cognitive achievement can easily distract from student engagement. This leads to basic questions about expected learning outcomes. Teachers must design course working backwards from expected outcomes in order to orientate themselves and students to the focus of each lesson as well as the entire module. Besides the cognitive dimension of outcome, according to Isaacs (2001), the major focus should not ignore the affective domain. How students perceive and give value to a subject can strongly impact their approaches to learning for both application in their chosen field as well as in everyday life.

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A Cross-Cultural Study of Apology Speech Act Realisations

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ABSTRACT

Different cultural backgrounds may perform different semantic formulas. This study aimed to investigate the occurrences of apology speech acts in two dimensions of semantic formulas: frequency and pattern. The participants for this study were 32 English native speakers and 32 Thai EFL learners, making a total of 64 participants. The participants responded to 10 acts of apologising in a written discourse completion task (DCT) that simulated apology-provoking situations. The responses from the DCTs were coded according to the apology taxonomy. The data were then analysed according to the frequency and pattern of the semantic formulas used by the two different groups. The findings revealed that the three most frequently used semantic formulas of the two groups were "Expression of apology", "Offering repair"/, and "Explanation", respectively. Also, the three most used patterns of semantic formulas found in the two groups were "Expression of apology + Offering repair", followed by "Expression of apology + Explanation", and "Expression of apology + Offering repair + Showing concerns", respectively. The findings suggest opportunities for building cross-cultural communications across continents. The results have implications for teaching and learning of English as an L2 in the cross-cultural contexts.

Keywords: Cross-cultural study, speech act, apology strategy, social status

INTRODUCTION

Since Hymes (1972) first introduced the concept of 'communicative competence', which is the ability to employ linguistic forms in order to communicate appropriately in social interaction, it has been recognised as important in the development of the interlanguage of second or foreign language learners. This has been the focus of the studies of interlanguage pragmatics, the branch of second language research that studies how

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non–native speakers understand and carry out linguistic actions in a target language, and how they acquire second language (L2) knowledge (Kasper, 1992). It can be said that successful and effective speaking of L2 learners is not just a matter of using grammatically correct words and forms, but also knowing when to use them and under what circumstances (Olshtain & Cohen, 1988; Tamanaha, 2003).

This has led to the study of cross-cultural and interlanguage pragmatics, which focuses on the study of non-native speakers' use and acquisition of linguistic patterns in a second language (Kasper & Blum-Kulka, 1993). Much attention in cross-cultural and interlanguage pragmatics has been devoted to learners' performance of speech acts in the second language. Speech acts, as one way to investigate pragmatics are "the basic or minimal units of linguistic communication" (Searle, 1969, p.16). Requesting, complimenting and apologising are examples of speech acts that demonstrate the intentions of the speakers. The ability to perform various speech acts is an important part of the development of communicative competence (Kwon, 2003). Therefore, a substantial body of empirical research has emerged describing speech acts performed by non-native speakers of various linguistic and cultural backgrounds such as Cohen and Olshtain (1981), Mir (1992), Olshtain and Cohen (1983), Reiter (2000), Takahashi and Beebe (1993), Prachanant (2006), Tamanaha (2003) and Trosborg, (1987, 1995).

In the past four decades, the speech act of apologies has also been investigated cross-culturally and some similarities and differences have been found between cultures in the use of apologies (Cohen & Olshtain, 1981; Olshtain, 1983; Owen, 1983; Olshtain, 1983; Olshtain & Cohen, 1983; Blum-Kulka & Olshtain, 1984; Cohen, Olshtain, & Rosenstein, 1986; Trosborg, 1987; Blum-Kulka, House & Kasper, 1989; Rintell & Mitchell, 1989; Vollmer & Olshtain, 1989; Holmes, 1990; Holmes, 1990; Mir, 1992; Bergman & Kasper, 1993; Trosborg, 1995; Maeshiba, Yoshinaga, Kasper, & Rose, 1996; Suszczynska, 1999; Reiter, 2000; Tamanaha, 2003; Intachakra, 2004; Prachanant, 2006). The studies mentioned were carried out in second or foreign language learning situations. The studies that have been carried out in Thai EFL situations are the studies of Intachakra (2004) and Prachanant (2006). They have carried out studies on the use of apologies in a foreign language learning situation with EFL learners in Thailand and found differences resulting from the culture of the learners.

This study, therefore, attempts to provide some insights into the norms and patterns of apology strategies used by native English speakers (NE) compared with the producing of those strategies of Thai EFL learners. The findings of this study could be of great help in the teaching and learning of foreign languages in relation to cultures, like teaching Thai to speakers of other languages or teaching English to Thais as well as in developing

a syllabus for communicative English courses in order to enhance one's ability to communicate effectively in a cross-cultural setting without facing a communication breakdown.

The Speech Act of Apology

Apologies are 'expressive' illocutionary act (Searle, 1976) and 'convivial' speech acts, the goal of which coincides with the social goal of maintaining harmony between speaker and hearer (Leech, 1983). Apologies typically occur post-event in an adjacency pair and involve interactions in which the apologiser attempts to restore harmony when an offence has been committed, but there is also an element of face-saving involved with a protective orientation towards saving the interlocutor's face and a defensive orientation towards saving one's own face (Trosborg, 1995).

Goffman (1971) undertook the study of apologies, which he termed 'remedial interchanges', focusing on the description of the remedial work necessary to transform the perceived offensive meaning of an act into an acceptable one. Such a task could be accomplished through accounts, apologies and requests. Goffman stated that a speaker can perform an apology by: 1) expressing embarrassment; 2) stating his/her knowledge of proper behaviour; 3) sympathising with the application of negative sanction; 4) repudiation of his/her own behaviour; 5) showing contempt for himself; 6) promising to embrace the 'right way'; and 7) proffering penance and restitution.

Taking for granted that the act of apology is one type of remedial work, Fraser (1981) continued an analysis and description of the 'semantic formulas' that are used to perform an apology. Fraser mentioned that speakers apologise not only by expressing 'regret' ("I'm sorry,"), but also by requesting 'forgiveness' ("Forgive me for…"), by acknowledging their 'responsibility' ("It was my fault."), by promising 'forbearance' ("It'll never happen again.") or by offering 'redress' ("Let me pay for the damages."). Fraser also points out that in cases where social norms are broken, speakers tend to add an 'account / explanation' of the situation to their apology formula.

Using Fraser's description of the semantic formulas employed in producing an apology as a starting point, Olshtain and Cohen (1983) came up with a more detailed classification, which constitutes the core of all the categorisations used in studies of apology. Olshtain and Cohen described apology as "a speech act set" that comprises five potential semantic formulas, namely:

1. Expression of an Apology or Illocutionary Force Indicating Device (IFID) – this formula can be classified into three sub-strategies: expressing regret (e.g. "I am sorry,"), offering apology (e.g. "I apologise.") and requesting forgiveness (e.g. "Excuse me." / "Forgive me.");
2. Acknowledgement of responsibility – there are three sub-categories: accepting blame (e.g. "It's my fault."),

expressing self-deficiency (e.g. "I wasn't thinking.") and recognising that the other person deserves an apology (e.g. "You are right.");

3. Explanation or account – this formula varies according to the context (e.g. "I was sick." / "There was an accident." / "I forgot." / "I had to work.");
4. Offer of repair – this formula occurs only in certain contexts (e.g. "I'll pay…" / "Let me help you.");
5. Promise of forbearance – this formula occurs only in certain contexts (e.g. "It won't happen again.")

When offenders need to apologise, they have the previous set of formulas as shown above to use/explain in the offensive act. On the other hand, when offenders do not need to apologise, they have a number of options, which are classified, but not analysed by Olshtain and Cohen, as follows:

1. No verbal reaction (opt out);
2. Denial of the need to apologise (e.g. No need for you to get insulted);
3. Denial of responsibility – this formula can be categorised into two types: not accepting the blame (e.g. "It wasn't my fault."), and blaming others (e.g. "It's your fault.").

Olshtain and Cohen's categorisation of apology strategies was developed and employed in studies of L1 and L2 in a variety of languages (Holmes, 1989, 1990; Mir, 1992; Trosborg, 1995; Suszczynska, 1999; Reiter, 2000; Intachakra, 2001; Tamanaha, 2003, Prachanant, 2006). However, the most interesting study, utilised in the present study, was conducted by Prachanant (2006). His study focussed on how to respond to complaints in the hotel business; he stated that reactions to complaints in the hotel business can be performed using one or more of 12 apology strategies or semantic formulas. The semantic classification of the 12 formulas is as follows:

1. Expression of Apology (e.g. "I (do) apologise." / "I'm (very, really, terribly, extremely) sorry." / "Excuse me.");
2. Acknowledgement of Responsibility (e.g. "Yes, sir/madam." / "Certainly!" / "All right." / "I see." / "Of course.")
3. Explanation (e.g. "We were very busy this morning." / "There were many orders this morning." / "All the rooms are occupied now.");
4. Offering Repair (e.g. "We'll inform them to be quiet." / "We'll call to check for you." / "I'll carry it out.");
5. Promise of Forbearance (e.g. "Everything will be ready in five minutes." / "Hope that you can go to bed early as planned." / "It will be done properly and under my supervision.");
6. Making a Suggestion (e.g. "Please relax at the restaurant." / "Would you like something to drink while you wait?");
7. Giving the Time Frame for Action (e.g. "Just a moment, please." / "Please wait a few minutes.");

8. Showing concern (e.g. "Steak is medium?" / "What's your room number, please?");
9. Gratitude (e.g. "Thank you." / "Thanks for letting us know of your inconvenience.");
10. Promise of Follow-up Action (e.g. "I will investigate how the incident occurred." / "Could I call you tomorrow to ask if the problem can be solved?");
11. Empathy (e.g. "I understand how you feel about this." / "Madam, if I were you, I will be the same as your feeling.");
12. Repetition of Complaints (e.g. "The TV cannot be turned on?" / "You said that your room is disgusting?").

In conclusion, it can be seen that the apology strategies analysed by many researchers in previous studies are similar. Therefore, these apology strategies are utilised as the conceptual framework for the present study.

Objectives and Methodology

This study was conducted for the purposes listed below.

1. To investigate the typical apology strategies produced by English native speakers and Thai EFL learners.
2. To investigate the patterns of semantic formulas used by English native speakers and Thai EFL learners.

The following research questions were investigated in this study.

1. What are the typical apology strategies employed by English native speakers and Thai EFL learners?
2. What are the patterns of semantic formulas used by English native speakers and Thai EFL learners?

PARTICIPANTS OF THE STUDY

The participants of the study were two different groups of subjects, namely, 32 native English speakers (NE) and 32 Thai EFL learners (TEFL). The former included 19 males and 13 females, with ages ranging from 19 to 52. All were from the U.S.A. The latter group included 12 males and 20 females, ranging in age from 22 to 48 years; they were all M. A. English major students at Buriram Rajabhat University, Thailand.

RESEARCH INSTRUMENT

The data were collected through a written Discourse Completion Task (DCT). An important task in this study was to examine the semantic formulas used in responding to apology situations of two different cultures: English and Thai. This required a controlled procedure by which a substantial amount of data from two different cultural and linguistic groups was collected in the same contexts for the purpose of comparison.

A DCT, employed by numerous studies (Blum-Kulka, 1982; Cohen, Olshtain, & Rosentein, 1986; House & Kasper, 1987; Olshtain & Weinbach, 1987; Beebe, Takahashi & Uliss-Weltz, 1990;

Rose, 1994; Al-Issa, 2003; Kwon, 2003; Wannaruk, 2004, Prachanant, 2006), is the most widely used method of data collection in second-language speech act research. The reasons for employing the DCT were that the DCT is a controlled elicitation method that meets the demand for cross-cultural comparability (Blum-Kulka *et al.*, 1989; Rintell & Mitchell, 1989; Trenchs, 1995; Decapua, 1998; Kwon, 2003) and it allows researchers to control the variables of the situation (e.g. status of interlocutors), thereby providing a consistent body of data. Also, it has been proven to be quick and efficient in gathering a large amount of data (Cohen & Olshtain, 1981; Wolfson, 1986; Beebe & Cummings, 1996). Since the goal of this study was to investigate the subjects' use of apology strategies under the given situations rather than to study those pragmatic aspects that are specific to the dynamics of a conversation e.g. turn-taking, speaker-listener coordination or sequencing of speech, a DCT is an adequate instrument to employ.

The DCT typically consists of a set of brief situational descriptions designed to elicit a particular speech act (Kasper & Rose, 2001). Subjects read the situation and then respond in writing to a prompt. The following is an example of a DCT prompt as used in this study:

Situation : You have placed a shopping bag on the luggage rack of a crowded bus.

When the bus breaks, your bag falls down and hits a humble woman.

You: _____

The DCT consisted of 10 different situations, designed to elicit apology strategies.

Since the present study was conducted mainly in a specific situation based on the relative power relationship, the social distance between the interlocutors varied; the interlocutors were set as stranger and intimate. In addition, the power relationship was 'high-low", 'low-high' and 'equal' and the social distance was not close.

The DCT was written in English. The following are the 10 provoking-apology situations:

Situation 1 : Borrowing the English book from a professor (Low-high)

Situation 2 : Asking a new trainee to answer the telephone (High-low)

Situation 3 : Forgetting a promise to watch a movie with a close friend (Equal-Equal)

Situation 4 : Borrowing a car from your close friend and then meeting with an accident (Intimate-Intimate)

Situation 5 : A shopping bag falls and hits a woman from a humble background (Stranger-Stranger)

Situation 6 : Spilling food on the customer's clothes (Low-high)

Situation 7 : Smashing part of a new trainee's laptop (High-low)

Situation 8 : Bumping into an old woman who is holding some fruit (Stranger-Stranger)

Situation 9 : Having lunch with a friend and burping involuntarily (Equal-Equal)

Situation 10: Pushing a close friend and falling down on a dirty floor (Intimate-Intimate)

After the design of the situations as well as the content of the DCT was carefully thought out and thoroughly discussed with native speakers of both languages in order to ensure they were sufficiently natural, the instrument was pilot-tested by six respondents: three from each group of the NE and Thai EFL subjects. The main objectives of the pilot test were: 1) to carry out a preliminary analysis in order to determine whether the wording, the format and the setting of the situations would present any difficulties; 2) to identify any problematic items in the DCT and remove those elements that did not yield usable data so that the respondents in the second phase would experience no difficulties in answering the DCT; 3) to double check that the DCT was clear to all respondents and that there was no confusion as to what they were meant to do; 4) to estimate how long it would take the respondent to answer the apology-provoking situations; and 5) to ensure some sort of validity of the DCT for the data collection and to check its reliability. In other words, to make sure that the DCT was an effective and dependable means of eliciting results that would yield answers to the questions.

Data Collection Procedures

The researcher collected the Thai EFL data himself and had a friend who studied in the U.S.A. collect the NE data. Before completing the DCT, both groups of subjects were given the Informed Consent Form. They completed a demographic questionnaire on their age, gender and years of schooling. Similar to the completion of the Informed Consent Form, both groups of subjects were asked to fill in the DCT. Both groups were told to respond as naturally as possible when completing each dialogue. The subjects were also free to ask questions of the administrator regarding the items in the DCT. No time limits were imposed for completion of the DCT.

DATA ANALYSIS

This section explains how the semantic formulas of the DCT data obtained from the subjects were coded. Also, it describes the statistical procedures used to analyse the data.

Coding

The data collected from both groups were analysed using semantic formulas as "units of analysis". All data from the DCTs were coded according to the apology taxonomy developed by Olshtain and Cohen (1983) and Prachanant (2006). For example, in the situation where participants responded to "Borrowing a car from your close friend and then meeting with an accident", a response such as "I'm terribly sorry. I had

an accident. I will certainly be responsible for the damages and costs," was analysed as consisting of three units, each falling into corresponding semantic formulas (as shown in the brackets):

(1) I'm terribly sorry.
[Apology]

(2) I had an accident.
[Explanation]

(3) I will certainly be responsible for the damages and costs.
[Offering repair]

When a particular response strategy to situation was used more than once in a single response, each use was counted independently. In addition, new types of strategy (semantic formulas) were identified based on this study. To make sure the semantic formulas were correct, three trained teachers of English who acted as independent raters, worked independently on recoding all of the apology strategies in each response according to the initial coding performed by the researcher. Generally, intercoder reliability value should be more than 80% (Wannaruk, 1997). For items on which there was disagreement, all the coders reviewed the coding guidelines, recoded the data together and discussed any discrepancies until they reached a consensus. The intercoder reliability was 94%. After the coding was completed, the researcher tabulated, quantified and compared the main discourse components between the two groups. Frequency was chosen as the primary endpoint of this study.

Statistical Procedures

The semantic formulas employed by each group in response to each DCT apology situation were analysed. The researcher then calculated the total number of frequencies of the apology strategies occurring in each situation from each group by using the percentages.

FINDINGS

Apology Strategies Used by Native English Speakers and Thai EFL Learners

This part presents the frequency of apology strategies employed by 64 participants: 32 NE and 32 Thai EFL learners, who were asked to respond to 10 apology-provoking situations through the DCT. The overall frequency of semantic formulas of each group is shown in Table 1 below. Strategies are listed in descending order from reported as those most frequently used to those least used based on the total frequency counting of both groups.

TABLE 1
Frequency of Apology Strategies Used by NE and Thai EFL Learners

Apology Strategies	NE (n=32)		Thai EFL (n=32)		All Groups Combined	
	f	%	f	%	f	%
1. Expression of apology	252	17.57	306	21.34	558	38.91
2. Offering repair	167	11.65	148	10.32	315	21.97
3. Explanation	98	6.83	129	9.00	227	15.83
4. Showing concerns	52	3.62	48	3.35	100	6.97
5. Promise of forbearance	37	2.58	38	2.65	75	5.23
6.Acknowledgement of responsibility	30	2.09	36	2.51	66	4.60
7. Offering help	29	2.02	18	1.26	47	3.28
8. Gratitude	16	1.12	7	0.48	23	1.60
9. Amusement	14	0.98	0	0.00	14	0.98
10. Exclamation	4	0.28	5	0.35	9	0.63
All Strategies Combined	**699**	**48.74**	**735**	**51.26**	**1,434**	**100.00**

Table 1 shows the overall frequency of semantic formulas reported on the two different groups: NE and Thai EFL groups through the DCT. The findings revealed that both groups employed 10 different strategies with 1,434 frequencies of semantic formulas. When considering each culture group, it was found that the NE group employed 10 different strategies with 699 frequencies (48.74%) of semantic formulas, whereas the Thai EFL group employed nine such strategies with 735 frequencies (51.26%) of semantic formulas; "Amusement" was not reported to have been used. Examination of the overall frequencies of strategy use, however, indicated that the three most frequently used strategies were: 1) "Expression of apology" (f = 558, 38.91%), followed by "Offering repair" (f = 315, 21.97%) and "Explanation" (f = 227, 15.83%), respectively. The two least used frequency strategies, on the other hand, are "Exclamation" (f = 9, 0.63%), followed by "Amusement" (f = 14, 0.98%), which was found only in NE group.

The following are the examples of the apology strategies reported in this study.

1) Expression of Apology: This strategy represents a strategy used to maintain or support the apologiser's face. In addition, it intends to remedy any threat to the apologisee's negative face. The utterances, which serve as an expression of apology, were as follows:
   e.g. - I (do) apologise.
   - I'm (very / really / terribly / extremely) sorry.
   - Excuse me.
   - Oops!

2) Offering Repair: This strategy is used to provide the apologisers with help to repair or rectify the unfavourable circumstance.

e.g. - I will have it fixed immediately.
- I will pay for all the damages.
- Please allow me to pay for the repair.

3) Explanation: Explanation or account is a strategy used to give reasons why an unfavourable act was performed. The following were the utterances from this study.
e.g. - I dropped the laptop accidentally.
- I did some damage to your car while reversing.
- I wasn't looking where I was going.

4) Showing Concern: This strategy is a strategy used to ask for some facts related to the unfavourable circumstance.
e.g. - Are you all right?
- How did everything go?
- I hope you are not hurt.

5) Promise of Forbearance: This strategy is to inform the apologisers that immediate repair can be expected / will be carried out. The apologisees will also undertake to do their best to remedy the unfavourable circumstance.
e.g. - I'm going to return the book tomorrow morning, I promise.
- I promise to return you today.
- I will bring it to you as soon as possible.

6) Acknowledgement of Responsibility: This strategy is to draw the apologisee's attention to acknowledge and accept the causes of the problem. The utterances used to accept a problem are:
e.g. - It was my fault.
- It's my mistake
- I feel so stupid!

7) Offering Help: This strategy is used when the apologiser would like to offer help to the apologisee for the unfavourable circumstance.
e.g. - Can I assist you in any way?
- Please let me help you pick up the fruits.
- May I help you?

8) Gratitude: This strategy is used when the apologiser would like to thank the apologisee for having informed him or her of the helping circumstance. Also, an expression of gratitude is employed when the apologiser wants to end the conversation with his / her interlocutor.
e.g. - Thank you very much.
- Thank you for your help.
- Thank you very much for covering the phone for me.

9) Amusement: This strategy is used when the apologiser feels embarrassed when he / she performed the unfavourable act.
e.g. - I am such a pig!
- I can't control it (…laugh…)

10) Exclamation: This strategy is used when the apologiser feels surprised or shock at the unfavourable circumstance.
e.g. - Oh, my god!
- Oh, my gosh!

The Patterns of Semantic Formulas Used by the NE and EFL Learners

This part presents the patterns of apology strategies employed by the 64 participants, 32 NE and 32 Thai EFL learners, who were asked to respond to each of 10 apology-provoking situations through the DCT. The 10 most used patterns of semantic formulas employed in each group are shown in Table 2 below. Patterns are listed in descending order from reported as those most frequently used to those least used based on the total frequency counting of both groups.

TABLE 2
Patterns of Semantic Formulas Used by NE and Thai EFL Learners

Apology Strategies	NE (n=32)		Thai EFL (n=32)		All Groups Combined	
	f	%	f	%	f	%
1. Expression of apology + Offering repair	82	15.10	94	17.31	176	32.41
2. Expression of apology + Explanation	68	12.53	75	13.81	143	26.34
3. Expression of apology + Offering repair + Showing concern	32	5.89	30	5.53	62	11.42
4. Expression of apology	17	3.13	30	5.53	47	8.66
5. Explanation	24	4.42	18	3.31	42	7.73
6. Expression of apology + Offering repair + Explanation	12	2.21	13	2.39	25	4.60
7. Acknowledgement of responsibility	8	1.47	8	1.47	16	2.94
8. Acknowledgement of responsibility + Offering repair	7	1.28	6	1.11	13	2.39
9. Offering repair	4	0.74	6	1.11	10	1.85
10. Expression of apology + Offering help	4	0.74	5	0.92	9	1.66
All Patterns Combined	**258**	**47.51**	**285**	**52.49**	**543**	**100.00**

As shown in Table 2, it was found that both groups of participants employed the patterns of semantic formulas in responding to the provoking-apology situations in the similar way. The three most frequently use of the patterns of semantic formulas employed by both groups were "Expression of apology + Offering repair" with the frequencies of 176 (32.41%): NE = 82 (15.10%), Thai EFL = 94 (17.31%), followed by "Expression of apology + Explanation" with the frequencies of 143 (26.34%): NE = 68 (12.53%), Thai EFL = 75(13.81%) and "Expression of apology + Offering repair + Showing concern" with a frequency total of 62 (11.42%): NE = 32 (5.89%), Thai EFL = 30 (5.53%), respectively.

The following are the examples of each pattern of semantic formulas:

1) Expression of apology + Offering repair – "I'm extremely sorry. I will pay for all the damages."

2) Expression of apology + Explanation – "I'm sorry. I did some damage to your car while reversing."

3) Expression of apology + Offering repair + Showing concern – "I apologise for that. I will buy some new fruits for you. Are you okay?"

4) Expression of apology – "I'm terribly sorry."

5) Explanation – "I wasn't looking where I was going."

6) Expression of apology + Offering repair + Explanation – "So sorry, I will buy a new one for you. I dropped the laptop accidentally."

7) Acknowledgement of responsibility – "It is my mistake, madam."

8) Acknowledgement of responsibility + Offering repair – "Oh, how clumsy I am! I will buy a new one for you."

9) Offering repair – "I will take care of all damages."

10) Expression of apology + Offering help – "Please accept my apology. What can I help you?"

DISCUSSION

Apology Strategies Used by the NE and Thai EFL Learners

Examining the data presented in Table 1, 10 apology strategies were used by the NE and Thai EFL learners. The three most used strategies were 'Expression of apology', 'Offering repair' and 'Explanation'. These findings are consistent with the claims made by all linguists who conducted the studies on apology (e.g. Cohen & Olshtain, 1981; Olshtain, 1983; Olshtain & Cohen, 1983; Trosborg, 1987, 1995; Holmes, 1989, 1990; Vollmer & Olshtain, 1989; Suszczynska, 1999; Tuncel 1999; Reiter, 2000; Intachakra, 2001; Tamanaha, 2003; Prachanant, 2006, Istifci, 2009; Alfattah, 2010) that with respect to the languages studies in their research, the three major semantic formulas mentioned were 'universal'. Having said that all these strategies are normally used by both the native and non-native speakers of all varieties of English. Thus it could be said that the situations employed in the present study mirrored those in daily life so that the findings of those studies were similar in employing the strategies. This is similar to the conclusion of Olshtain (1983, p.170) that "it seems to be possible to identify universal manifestations of strategy selection'." In addition, this strategy was claimed by Suszcynska (1999) i.e. that it was commonly called for in most situations investigated. Also, the most explicit realisation of the apology strategy is 'Expression of apology', which is called for in each situation by both groups. This could be explained by the fact that both groups had the perception that using 'Expression of apology' was compulsory in each apology; "I'm (intensifiers) sorry" was the most common used. This is consistent with the claims made by Owen (1983) that 'Expression of apology' is the most conventionalised and routinised as it was in the centre of the speech act of

apologising in the study and represented verbal routine or a syntactic-semantic formula, which is regularly used to fulfil a specific communicative function.

The Patterns of Semantic Formulas Used by the NE and Thai EFL Learners

The findings revealed that the two most popular patterns of semantic formulas used were 'Expression of apology + Offering repair' and 'Expression of apology + Explanation'. This could be explained by the fact that both groups of the participants have the perception that using 'Expression of apology' was compulsory in each provoking-apology situation, and 'Offering repair' or 'Explanation' should be called for in order to decrease the offence of the apologisee. As Owen (1983; cited in Suszcynska,1999) stated, 'Expression of apology' was the most conventionalised and routinised as it was in the centre of the speech act of apologising in the study and represented verbal routine or syntactic-semantic formula, which is regularly used to fulfil a specific communicative function. This finding is similar to the studies of Tuncel (1999), Istifci (2009) and Alfattah (2010), who concluded that the three most used patterns in apology situations are 'IFID (Apology) + Explanation' and 'IFID (Apology) + Promise and forbearance' and 'IFID (Apology) + Offering repair', respectively.

CONCLUSION

The results of this study suggested that in some situations Thai EFL learners approached native speaker norms in the use of apology strategies. However, in some situations there were different in the use of apologies. This may be assumed that L1 (Thai) have an influence on the use of apologies in the Thai EFL group. As mentioned in scope and limitation of the study, it is difficult to generalise the findings because the data were collected from 32 NE and 32 Thai EFL learners. However, the findings from this study suggest opportunities for building cross-cultural communications across continents. The results have implications for teaching and learning of English as an L2 in cross-cultural contexts. That is, to raise pragmatic awareness in the English classroom, language teachers should use clips from feature films or videotaped television programmes such as news reports and business talk shows, which illustrate various responses to introduce language learners to apology interaction or any other speech act behaviours between native speakers of English (Rose, 1997; Tanaka, 1997). Using audiovisual media is especially useful in an EFL environment like Thailand, where there is no or little authentic input from native speakers of the target language. The teachers could encourage the pragmatic awareness of learners by discussing status relationships between the interlocutors and by comparing the differences, as well as the similarities between the ways English speakers in the clips performed any given speech acts and the way learners would do so in Thai. This kind of activity would help learners realise that speakers from different

cultures may not always share the same sociolinguistic rules of performing speech acts as their own.

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Malaysian English or Grammatical Errors?

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ABSTRACT

Researchers have claimed that the English language in Malaysia has deeply progressed into a phase of Independent/Liberation and Expansion (Gill 1999) or Nativisation (Schneider, 2003b). In this phase, English in use acquires significant structural changes. In fact, many syntactic variants that can be attributed to this phase have been identified by Malaysian English ME scholars and researchers since the 1970s. The findings of earlier research (Tongue 1974, Platt & Weber, 1980) reveal that some usages have been nativised in the Malaysian linguistic repertoire, but those findings are mostly based on spoken data. In terms of the written language, the extent of nativisation has yet to be extensively researched. This study seeks to explore Malaysian teachers' perception of certain syntactic variants of English and their acceptance in written English. Teachers, especially English teachers, are regarded as gatekeepers when it comes to the use of English in Malaysia. With the perceived decline of the national standard of English in the country, it is crucial to investigate if the use of these syntactic variants by English teachers is a matter of choice or a manifestation of language proficiency. In this study, 150 English teachers from Malaysian secondary schools were recruited to respond to a questionnaire, exploring their perception of selected syntactic usages. The findings corroborate much that has been documented over decades about Malaysian English, showing essentially that changes in what is known as acceptable English usage is ongoing. However, the findings also indicate that the acceptance of these variants among a number of young Malaysian English teachers is not a matter of choice but a reflection of their language proficiency. The findings will have some pedagogical impacts on English language teaching (ELT) in Malaysia.

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INTRODUCTION

Like many other countries where New Englishes (Platt & Weber, 1980) are spoken, Malaysia is experiencing a tension between the desire to compete abroad using Standard English and the process of localisation in the country. Schneider (2003b) claims that the English language in Malaysia has deeply progressed into nativisation, the middle of five phases of his dynamic model of the evolution of New Englishes. In this phase, English in use acquires significant structural changes in terms of syntax, and this sociolinguistic phenomenon has been noticed by Malaysian English (ME) scholars and researchers (e.g. Tongue, 1979; Platt & Weber, 1980; Wong, 1983; Baskaran, 1987; Khaw, 2008).

From an educational perspective, the prevalent use of these syntactic variants of Malaysian English has also been perceived to be caused by a change in the standard of English proficiency in Malaysia. Wong (1983, p. 103) expressed her concern about the competence of English teachers in Malaysian schools, which she saw would have considerable impact on the standard of English proficiency and English language teaching in the country.

> *...as more and more English-speaking Malaysians are themselves less and less sure about what the 'correct' forms should be, and because more and more of these 'aberrations' are being found in the language of those who can be considered to set the standard for English in the country. It is only in the English language classroom that such 'aberrations', especially in grammar, are subject to correction, but much of this loses its effectiveness as more often than not the teachers themselves are no models for the 'correct' English contained in the textbook or required by the syllabus.* (Wong, 1983, p. 103)

Benson (1990, p. 20) explained that more and more Malaysians learned English as a subject in school but did not use it extensively.

> *Since English is now taught as a compulsory second language in all Malaysian schools, it can be said that more Malaysians than ever before are familiar with English. But those whose experience of English is confined to the school system rarely go on to use it in their daily life.* (Benson, 1990, p. 20)

David (1990, 2000), however, attributed the decline in the national English standard to the change of English syllabus from the Structural Syllabus to Communicational Syllabus in the mid-seventies, which failed to enable students to achieve grammatical proficiency. The national standard of English has worried scholars and educators. Gill (2003) lamented that young Malaysians' generally low English proficiency was manifest in their mastery of only the mesolect (sub-variety for intra-national communication) and not the acrolect (sub-variety for international communication).

> *We have teachers and students, a whole generation, who are able to communicate only at a single point along the continuum. Most of them are able to communicate only with the mesolectal variety. This generation is described as the "language transition generation" — in transition because they have been educated in Bahasa Malaysia and are now switching over to English and are expected to perform and function effectively in Standard Malaysian English.* (Gill, 2003, p. 22)

In brief, the perceived decline in the standard of English proficiency has been ascribed to the following factors: the change of medium of instruction in school from English to Bahasa Malaysia, the change of English school syllabus from a structural base to a commutative base and a wider social penetration that restricts the use of English to the school experience.

It is important to examine teachers' perception of some common usages of ME which may have social, cultural and pedagogical implications in the ME speech community. An essential question to further explore and address is this: Is the use of these common usages a matter of ignorance in English or a matter of choice?

Syntactic Features of Malaysian English

This section presents a list of variant syntactic features identified by previous ME scholars to be commonly and prevalently used by ME speakers. These syntactic features were sourced from key studies that deal with linguistic features of ME, either anecdotal or empirical in form. Cross-referencing has been carried out among the sources to ensure consensus on these ME syntactic features. Although prevalent in use, these are features that have not been endorsed by the education authority in Malaysia as a standard for pedagogical use.

Some common syntactic features found among various sources (Tongue, 1979; Platt & Weber, 1980; Platt, 1982; Wong, 1983; Baskaran, 1987) are listed below as points of reference for data analysis.

TABLE 1
Some Features of Malaysian English (Khaw, 2013)

Nouns and Noun Phrases	**Examples**
Pluralising or individualising uncountable nouns	*a chalk, a luggage, a mail, informations, equipments, knowledges, feedbacks*
No marking of plural-s	*"I have two sister."*
Pronoun-copying	*"My sister, she is a doctor."*
Omission of object pronoun-*it*	*"I would appreciate if you could complete the enclosed form."*
Verbs and Verb Phrases	
Ellipsis of copula	*"Why you leaving?" "Why you crying?"* *"My sister also not working."* *"My auntie in America."*

Table 1 (continue)

Progressive aspect used with stative meanings	*"They are owning two houses in KL."* *"I am doubting it.", etc.*
No marking of present tense singular verbs	*"My mother cook dinner every evening."*
No marking of past tense verbs	*"I start here last year."*
Prepositional Usages	
Use of different preposition in phrases and phrase verbs	*"He's good in writing scripts."*
Redundant preposition	*"They are seeking for an acceptable compromise."*
Omission of preposition	*"Please supply me ^ a description of..."*
Articles	
Absence of definite or indefinite articles	*"My sister is teacher."*
Word Order	
Lack of inversion with sentence started with negative adverbs.	*"Never I have seen such an ungrateful person."*
Object-subject-verb	*"Such people I despise."* *"TV I don't usually watch."*
The presence of inversion in an embedded interrogative	*"I wonder what have they been doing."*
Invariant Question Tags	
'…isn't it?' and '…is it?'	*"We've seen that film already, isn't it?"* *"She used to live here, isn't it?"* *"You want a lift, is it?"*
Aspect Markers	
'Already' as a completive aspect marker	*e.g. "I already do my work."*
'Used to' as a *habitual aspect marker*	*e.g. "My father used to go out very early." (Meaning: My father goes out very early.)*

In her study investigating Malaysian English teachers' and employers' perception of language usage, Khaw (2008) found that 'I look forward to hear from you' gained acceptance from the majority of the participants, and the researcher believed that 'no marking of gerund' might have become part of the linguistic repertoire of educated Malaysians.

Teachers' Perception of Malaysian English Syntactic Variants

Although there has never been an official effort to consolidate the use of the Malaysian syntactic variants in the pedagogical model in Malaysia, findings of previous studies have shown that there is a trend for some ME syntactic features to be accepted in the written mode (Suppiah, 1983; Baskaran, 1987; Soo, 1990; Khaw, 2008). Most studies found that teacher participants were generally positive towards the use of these usages in the spoken mode, and they had also accepted certain usages in the written mode. Soo (1990) even predicted that full acceptance of these syntactic features in the written mode was just a matter of time.

In addition, some of these features have also been found in the major English newspapers and public notices in Malaysia (Newbrook, 1997; Schneider 2003b). In her study comparing Australian and Malaysian teachers' perceptions of some syntactic features of Malaysian English, Khaw (2008) found that Malaysian teachers were in general more accepting than the Australian teachers of most syntactic features of Malaysian English such as *"use of different preposition in phrases and phrasal verbs"* and *"individualising or pluralising uncountable nouns."*

Substantial empirical examples of ME features found by researchers more than 30 years ago (Tongue, 1979; Platt & Weber, 1980) led them to argue that ME was in a state typical of nativisation. It can thus be expected that in today's ME, these features are commonly in use in the English language of Malaysians and may head toward consolidation (Gill, 1993; 1999).

Teachers are a key professional group in the evaluation of language use, and their attitudes toward language variation not only affect the acceptance of a language variety in a classroom, but also in a speech community. This study investigates how Malaysian secondary school English teachers perceive some common usages of Malaysian English and explore the key issue of whether their acceptance of these common usages of ME is a choice or an indication of the lack of English proficiency.

METHOD AND RESULTS

One hundred and fifty English teachers teaching in two types of Malaysian secondary school, namely national type and Chinese independent secondary schools, were recruited to participate in this study. The teachers were asked to evaluate 23 sentences containing 11 types of syntactic features of ME and to indicate if they accepted or rejected the sentences in formal written contexts. The teachers' responses to each example of usage were tallied and converted into percentage.

The 11 different types of syntactic features incorporated into the sentences are as follows.

1. Absence of definite or indefinite articles
2. Omission of object pronoun-'it'
3. Redundant preposition
4. Omission of preposition
5. Use of different preposition in phrases and phrasal verbs
6. Invariant Question Tags (e.g. Isn't it? Is it?)
7. Individualising or pluralising uncountable nouns
8. The presence of inversion in an embedded interrogative
9. No marking of present tense singular verb
10. No marking of gerund
11. No marking of plural-s

Teachers were divided into two groups according to their age and years of teaching experience. Among the participants, 71 teachers were above 35 years old and had

at least 10 years of teaching experience while 79 were below 35 years old, and 90% of them had less than 10 years of teaching experience. The responses of both groups to each question are tabulated below. The answers are divided into the following categories.

A = Acceptance
R = Rejection with a correct answer
RN = Rejection with a wrong answer or no answer

	Older Teachers (35 years old and above) N=71	**Younger Teachers (35 years old and below) N=79**
1. She came back with three luggages.	A: 16.9 R: 76.1 RN: 7.0	A: 46.8 R: 41.8 RN: 8.9
2. We can't provide the informations you need for the investigation.	A: 4.2 R: 94.4 RN:1.2	A:17.7 R:65.8 RN:13.9
3. She was very upset last night, isn't it?	A:0 R: 77.5 RN: 22.5	A:3.8 R:72.2 RN:22.8
4. We need to get some new softwares for my computer.	A: 25.4 R: 47.9 RN: 25.4	A: 48.1 R: 34.2 RN: 13.9
5. Motorist should observe traffic rules.	A: 31 R: 60.6 RN: 8.5	A: 49.4 R: 26.6 RN: 24.1
6. He is good in fixing faulty electronic appliances.	A: 21.1 R: 62 RN: 16.9	A: 59.5 R: 32.9 RN: 7.6
7. They did not want to get into such situation.	A: 40.8 R: 53.5 RN: 2.8	A: 68.9 R: 7.6 RN: 19.0
8. They were discussing about the issue of plagiarism in class.	A: 23.9 R: 64.8 RN: 8.5	A: 60.8 R: 22.8 RN: 13.9
9. They are seeking for a better life.	A: 39.4 R: 53.5 RN: 5.6	A: 74.7 R: 16.5 RN: 6.3
10. Such condition is unacceptable.	A: 45.1 R: 42.3 RN: 5.6	A: 77.2 R: 8.9 RN: 7.6
11. You are just kidding, is it?	A: 2.8 R: 73.2 RN: 22.5	A: 7.6 R: 62 RN: 27.8
12. Please supply me a description of the snatch thief.	A: 11.3 R: 31 RN: 54.9	A: 29.1 R: 21.5 RN: 44.3

13. This is most expensive meal I have ever had.	A: 7.0 R: 84.5 RN: 7.0	A: 25.3 R: 63.3 RN: 8.9
14. I would appreciate if you could complete the enclosed form.	A: 43.7 R: 36.6 RN: 16.9	A: 57.0 R: 24.1 RN: 13.9
15. I wonder what have they been doing.	A: 18.3 R: 73.2 RN: 8.5	A: 29.1 R: 54.4 RN: 15.2
16. We need to buy more equipments for this lab.	A: 12.7 R: 80.3 RN: 7.0	A: 41.8 R: 49.4 RN: 7.6
17. There was too much work for her to cope up with.	A: 28.2 R: 59.2 RN: 9.9	A: 48.1 R: 30.4 RN: 17.7
18. My husband works for a multinational company and he need to travel to foreign countries from time to time.	A: 4.2 R: 87.3 RN: 5.6	A: 25.3 R: 64.6 RN: 6.3
19. Life is not a bed of roses. We need to take challenges from time to time.	A: 43.7 R: 36.6 RN: 14.1	A: 74.7 R: 13.9 RN: 8.9
20. I don't know what is he trying to tell us.	A: 9.9 R: 78.9 RN: 9.9	A: 29.1 R:51.9 RN:17.7
21. They associate the increasing crime rate to the influx of illegal foreign workers.	A: 38.0 R: 35.2 RN: 19.7	A: 62.0 R: 10.1 RN: 21.5
22. All of you need to pass up the assignment by tomorrow.	A: 25.4 R: 57.7 RN: 14.1	A: 38.0 R: 43.0 RN: 16.5
23. I have enclosed my resume for your reference and I look forward to hear from you soon.	A: 16.9 R: 66.2 RN: 14.1	A: 45.6 R: 34.2 RN: 19.0

On average, the mean of the acceptance rate of all usages among the older teachers is 22.16% while the mean of the acceptance rate of all usages among the younger teachers is 44.33%. The difference in the acceptance rates between the two groups of teachers is statistically significant (22.17%, $p<0.05$).

DISCUSSION

Absence of Definite or Indefinite Articles

It can be seen from the results that the acceptance rates are fairly high for the two examples of 'absence of indefinite articles'. Among the younger teachers, the acceptance rates are 68% and 77%, respectively while the acceptance rates are 45% and 40% among the older teachers. However, when it comes to 'absence of definite articles', the rejection rate is fairly high among both groups. The results imply that the majority of teachers may not be aware of the need of an indefinite article following the word 'such'.

7. They did not want to get into such situation.	A: 40.8 R: 53.5 RN: 2.8	A: 68.9 R: 7.6 RN: 19.0
10. Such condition is unacceptable.	A: 45.1 R: 42.3 RN: 5.6	A: 77.2 R: 8.9 RN: 7.6
13. This is most expensive meal I have ever had.	A: 7.0 R: 84.5 RN: 7.0	A: 25.3 R: 63.3 RN: 8.9

Omission of Object Pronoun-'it'

Tongue (1979) and other researchers have claimed that 'omission of pronoun object-it' is a typical feature in ME writing. In this study, it was found that 43.7% of the older teachers accepted the usage and 57% of the younger teachers accepted the usage. It is also interesting to note that among those who rejected the sentence nearly 15% of the teachers from both groups did not know what was wrong with the sentence. The results are in line with findings from previous studies. It should be noted that the participants of this study are English teachers, and if they think that this usage is acceptable, there will be considerable social and pedagogical impact in the relevant speech community.

14. I would appreciate if you could complete the enclosed form.	A: 43.7 R: 36.6 RN: 16.9	A: 57.0 R: 24.1 RN: 13.9

Redundant Preposition

'Redundant prepositions' such as 'discuss about' and 'seek for' are commonly found not only in ME but also in other New Englishes (Platt & Weber, 1984). In this study, the results show that there is a trend of accepting this usage among the younger teachers (about 61% for 'discuss about' and 75% for 'seek for'). A local standard may be formed if this usage is accepted by a wider teacher community in the near future.

8. They were discussing about the issue of plagiarism in class.	A: 23.9 R: 64.8 RN: 8.5	A: 60.8 R: 22.8 RN: 13.9
9. They are seeking for a better life.	A: 39.4 R: 53.5 RN: 5.6	A: 74.7 R: 16.5 RN: 6.3
17. There was too much work for her to cope up with.	A: 28.2 R: 59.2 RN: 9.9	A: 48.1 R: 30.4 RN: 17.7

Omission of Preposition

There is generally low rejection of features involving prepositions. This is not surprising as prepositions are typical language feature that allows for innovations in the nativisation phase (Schneider, 2003b). It can be seen from the results that the acceptance rates for two examples are fairly high. Even though the acceptance rate for sentence 12 is low in both groups, it can be seen that most of the teachers did not know what was wrong with the sentence.

12. Please supply me a description of the snatch thief.	A: 11.3 R: 31 RN: 54.9	A: 29.1 R: 21.5 RN: 44.3
19. Life is not a bed of roses. We need to take challenges from time to time.	A: 43.7 R: 36.6 RN: 14.1	A: 74.7 R: 13.9 RN: 8.9

Use of Different Preposition in Phrases and Phrasal Verbs

The results show that nearly 60% of the younger teachers accepted the use of 'good in' while only 21% of the older teachers accepted it. About 62% of the older teachers and 33% of the younger teachers insisted on using 'good at'. As for 'pass up', it can be seen that the rejection rate is fairly high. About 58% of the older teachers and 43% of the younger teachers insisted on using 'hand in' or 'submit'. As for sentence 21, instead of using the preposition 'with,' it can be seen that 'to' was also accepted by a fairly high number of teachers, especially in the younger teacher group (62%).

6. He is good in fixing faulty electronic appliances.	A: 21.1 R: 62 RN: 16.9	A: 59.5 R: 32.9 RN: 7.6
21. They associate the increasing crime rate to the influx of illegal foreign workers.	A: 38.0 R: 35.2 RN: 19.7	A: 62.0 R: 10.1 RN: 21.5
22. All of you need to pass up the assignment by tomorrow.	A: 25.4 R: 57.7 RN: 14.1	A: 38.0 R: 43.0 RN: 16.5

Invariant Question Tags (e.g. isn't it? Is it?)

The results show that the rejection rates are high for the examples of this syntactic feature among the two groups of teachers. It can be concluded that even though this feature is a typical usage of Malaysian English and can always be heard in verbal communication, the majority of teachers from both groups did not accept *Invariant Question Tags (e.g. isn't it? Is it?)* in formal written English.

3. She was very upset last night, isn't it?	A: 0 R: 77.5 RN: 22.5	A: 3.8 R: 72.2 RN: 22.8
11. You are just kidding, is it?	A: 2.8 R: 73.2 RN: 22.5	A: 7.6 R: 62 RN: 27.8

Individualising or Pluralising Uncountable Nouns

It can be seen from the results that as far as the older teachers are concerned, the rejection rates for the examples of the features are fairly high but among the younger teachers, nearly half of them accepted the use of 'luggages' and 'softwares'.

1. She came back with three luggages.	A: 16.9 R: 76.1 RN: 7.0	A: 46.8 R: 41.8 RN: 8.9
2. We can't provide the informations you need for the investigation.	A: 4.2 R: 94.4 RN: 1.2	A: 17.7 R: 65.8 RN: 13.9
4. We need to get some new softwares for my computer.	A: 25.4 R: 47.9 RN: 25.4	A: 48.1 R: 34.2 RN: 13.9
16. We need to buy more equipments for this lab.	A:12.7 R: 80.3 RN:7.0	A:41.8 R:49.4 RN: 7.6

The Presence of Inversion in an Embedded Interrogative

The rejection rates for the examples of this feature are higher than 70% among the older teachers and higher than 50% among the younger teachers. It can be concluded that although this syntactic feature is commonly used in spoken ME, it is not widely accepted in written English by the teachers.

15. I wonder what have they been doing.	A: 18.3 R: 73.2 RN: 8.5	A: 29.1 R: 54.4 RN: 15.2
20. I don't know what is he trying to tell us.	A: 9.9 R: 78.9 RN: 9.9	A: 29.1 R: 51.9 RN: 17.7

No Marking of Present Tense Singular Verb

'No marking of present tense singular verb' is a linguistic habit of most Malaysians especially in spoken communication. It can be seen from the results that this feature was widely rejected by both group of teachers in formal written English, especially among the older and more experienced teachers. It was treated as a grammatical error.

18. My husband works for a multinational company and he need to travel to foreign countries from time to time.	A: 4.2 R: 87.3 RN: 5.6	A: 25.3 R: 64.6 RN: 6.3

No Marking of Gerund

The results show that nearly 50% of the younger teachers accepted the usage. Even though 19% of them rejected the usage, they did not know what was wrong with the sentence. This results are in line with the findings of Khaw's study (2008), implying that 'no marking of gerund' (i.e. look forward to see) may gain popularity and acceptance as a syntactic feature of ME in the near future.

23. I have enclosed my resume for your reference and I look forward to hear from you soon.	A: 16.9 R: 66.2 RN: 14.1	A: 45.6 R: 34.2 RN: 19.0

No Marking of Plural-s

Nearly 50% of the younger teachers accepted the usage while only 31% of the older teachers accepted the usage. Even though 24% of the younger teachers rejected the usage, they did not know what was wrong with the sentence.

5. Motorist should observe traffic rules.	A: 31 R: 60.6 RN: 8.5	A: 49.4 R: 26.6 RN: 24.1

Overall, the younger and less experienced teachers rejected fewer features than the older and more experienced teachers did. Even when both groups of teachers rejected a feature, the rejection rate is much higher in the older and more experienced teacher group. In line with the findings of most previous studies, many syntactic features such as 'omission of object pronoun-it' and 'individualising and pluralising uncountable nouns' were widely accepted by younger Malaysian

teachers in this study, confirming that these features do have a place of significance in formal written contexts in Malaysia. The other features have also become acceptable in formal writing to a clear majority of younger Malaysian teachers in this study. The older teachers, by comparison, are much more negative toward these syntactic features and usages. More often than not, the judgment of the Malaysian teachers in this study testifies to a state of uncertainty over norms instead of stability, which is typical of the *nativisation* phase in the dynamic model of the evolution of New Englishes proposed by Schneider (2003).

FINDINGS AND IMPLICATIONS

The findings of this study are consistent with findings of previous studies that English in Malaysia is generally in the *nativisation* phase of Schneider's model (2003); however, there are also signs that *exonormative standards* are still often applied and an *endonormative standard* is not yet consolidated.

While this study has limitations, the findings shed some light on the acceptability of the syntactic variants by Malaysian English teachers, especially among those who are below 35 years old. They also provide evidence that several syntactic features are now widely accepted by Malaysian English teachers, the gatekeepers to progression in education. It is hoped that the findings of this study will serve as a reference and provide impetus for further research on the evolution and teaching of English in Malaysia.

The findings of this study have considerable implications for the teaching of formal writing. In Malaysia, because text books still adhere to the teaching of Standard English as far as syntax is concerned, the high acceptance of these syntactic features by the teachers shows that there is a gap between the pedagogical standard and what they believe to be correct in practice. It can also be seen from the findings that the use of Malaysian common usages more often than not is not a matter of choice, especially among the younger Malaysian teachers.

There are two things about this which deserve the attention of educational policy makers in Malaysia. First, it is imperative to decide the target norm, be it exonormative or endonormative. Second, it is necessary to formulate a pedagogical model that states the norm clearly so that it may be upheld by the speakers and users within the education system without confusion. If the national standard remains to be an exonormative standard, teachers should be trained to uphold the norm, especially in written English. Even if a local standard is adopted, Malaysians should be aware of the reality of local and international standards, so they will not be disadvantaged for communication in the international contexts.

RECOMMENDATION FOR FUTURE RESEARCH

On the basis of the findings of this study, it is suggested that a study, larger in scope and based on a nationwide sampling, be conducted to ascertain the general range of Malaysian teachers' judgment of these syntactic variants taking various demographic and educational factors into consideration. This will provide more comprehensive, representative and consistent information about the *nativisation* of ME.

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Leveraging Service Quality of Resorts and Hotels in Luang Prabang by Integrating SERVQUAL and Kano's Model

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ABSTRACT

The main objective of this study is to assess tourists' expectations and perceptions of service quality of resorts and hotels in Luang Prabang by integrating the SERVQUAL model and Kano's model. Four hundred and seven sets of responses were collected from tourists staying in resorts and hotels in Luang Prabang using a structured questionnaire. The results of the study showed that tourists' perception of resorts and hotels service quality is significantly higher than expectation in terms of service reliability and tangibles. According to Kano's model, the results show that among resorts and hotel quality improvement indicators, there are two one-dimensional quality elements (O). These include the non-unexpected service costs and friendliness indicator and courtesy of the service personnel indicator. After integrating SERVQUAL results with Kano's model results, both areas show high expectations from tourists. Moreover, the results from an expectation-service gap matrix indicate that the areas that require attention and improvement, due to high expectations and high negative service gap, are availability of service personnel when needed, provision of adequate information about the service delivered, ability to handle customer complaints efficiently and seeking the best to satisfy the interests of customers.

Keywords: SERVQUAL, service quality, Kano's model, Luang Prabang

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INTRODUCTION

Tourism is becoming an increasingly significant factor in ensuring the economic well-being of many Asian countries and this is particularly true in the case of Lao PDR. The Lao PDR's Ministry of Information,

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Culture and Tourism reported that the number of tourists in 2013 were 3,779,490, which was a 23.62% increase from the previous year. The increase in tourism popularity of the country had economically generated national incomes of more than 513 million US dollars (Asian Information Centre, 2014), underlining the importance of the tourism industry in Laos. The Lao National Tourism Administration (Lao National Tourism Administration, 2013) stated that the country owns 1,493 tourist attractions. Amongst potential tourists, Luang Prabang is one of the well-known tourist attractions. Luang Prabang was the former-capital of Lao PDR. The local culture and environment are still preserved. The city was classified as a World Heritage by UNESCO in 1995 for its outstanding cultural, historic and architectural values. The city is among the top three tourist attractions of the country. Currently, there are 1,477 rooms in 57 hotels and 2,464 rooms in 308 guesthouses available for tourists in Luang Prabang, not including two new hotels scheduled to commence operation in 2014. By the implementation of ASEAN Economic Community (AEC) in 2015, the region will become a single market and production base with a highly competitive economy. The service quality of the tourism industry, especially hotel service, should be one of the important current concerns as quality of service is a key factor in attracting new tourists and encouraging repetition.

Parasuraman, Zeithaml and Berry (1988) introduced the recognised service quality framework known as SERVQUAL. SERVQUAL is an appropriate tool in assessing tourists' expectations and perception of hotel services. To further understand tourists' needs, the integration of Kano's model with SERVQUAL will of benefit in classifying service quality attributes. Hence, the objectives of this study were to assess tourists' expectations and perception of service quality of resorts and hotels in Luang Prabang by integrating the SERVQUAL model and Kano's model; to compare tourists' expectations and perception of service quality; and to classify service quality attributes according to tourists' requirements.

LITERATURE REVIEW

SERVQUAL

SERVQUAL is a 22-item instrument developed by Parasuraman *et al.* for assessing customer perception of service quality in service and retailing organisations. It consists of five sections, namely, tangibles, reliability, responsiveness, assurance and empathy. To assess service quality, the gap between expectations before receiving service and perception after receiving service are measured (Parasuraman, Zeithaml, & Berry, 1988; Asubonteng, McCleary, & Swan, 1996). Recent research in hotel service quality has been conducted using SERVQUAL (Karunaratne & Jayawardena, 2010; Mola & Jusoh, 2011).

To gain more insight into the relationship between service quality gap and service quality expectation, this research adapted the importance-performance (IPA) model (Martilla &

James, 1977). The model could provide better understanding of the importance level of service quality attributes. The model contained four quadrants, which can be interpreted into four qualities. For this research, the model is illustrated using service gap as a performance in the x-axis and service expectations as an important feature in the y-axis. The four quadrants were divided using the mean score of all values in each axis. Each quadrant interpretation is shown in Fig.1.

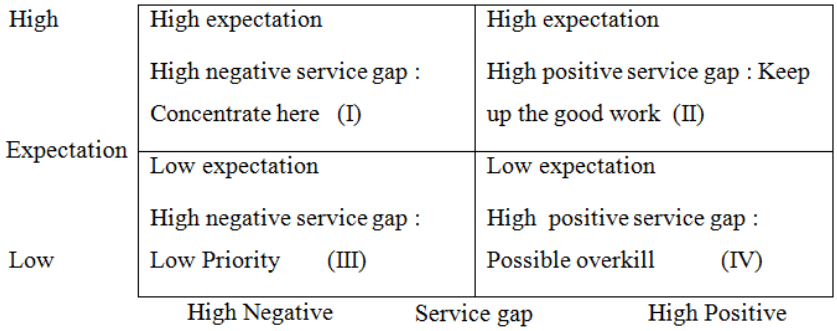

Fig.1: The expectation-service gap matrix.

The attributes identified in quadrant I had high expectations but low service, which means that they presented the quality that customers expected but the service gaps were lower than average. The attributes identified in quadrant II had both high expectations and a higher-than-average service gap score. These attributes received high expectations from customers and the service providers could generally meet their expectations. The attributes identified in quadrant III had both low expectations and a lower-than-average service gap score, which indicate that customers did not expect the service and neither did the service provider expect that customers demand for the service. Lastly, the attributes identified in quadrant IV had low expectations but a higher-than-average service gap score. The customers did not expect the service but the service providers could provide satisfactory service.

Kano's Model

Kano's Model was created in 1984 by Professor Noriaki Kano while studying the contributing factors to customer satisfaction and customer loyalty (Verduyn, 2014). Kano's model classifies quality attributes using a structured questionnaire consisting of pairs of questions featuring a functional question and a dysfunctional question (Mikulić & Prebežac, 2011). A functional question inquired into customers' feelings when the service was fulfilled. On the other hand, a dysfunctional question queried customers' feelings when the services were not fulfilled. The results from pairing were classified into different attributes using Kano's evaluation table (Matzler & Hinterhuber, 1998) shown in Table 1.

TABLE 1
Kano Evaluation Table (Sauerwein, Bailom, Matzler & Hinehurber, 1996)

Customer Requirements		Dysfunctional (negative) question				
		Like	Must-be	Neutral	Live with	Dislike
Functional (positive) question	Like	Q	A	A	A	O
	Must-be	R	I	I	I	M
	Neutral	R	I	I	I	M
	Live with	R	I	I	I	M
	Dislike	R	R	R	R	Q

Based on the Kano evaluation table, the attributes were classified into five service quality attributes. An M or 'Must-be' attribute refers to service that was sufficient, therefore leading to satisfaction; when the service was not sufficient, it led to dissatisfaction. An "O" or "one-dimensional" attribute refers to service that was sufficient, therefore leading to satisfaction; when the service was not sufficient, it led to dissatisfaction. An "A" or "Attractive" attribute refers to service that was sufficient, therefore leading to satisfaction; when the service was not sufficient, it led to dissatisfaction. An "I" or "Indifferent" attribute refers to whether the service was sufficient or not, therefore leading to satisfaction nor dissatisfaction. An "R" or "Reversal" attribute refers to when service was sufficient, therefore leading to dissatisfaction; when the service was not sufficient, it led to satisfaction.

Integrating Kano's Model to SERVQUAL

Integrating Kano's model to SERVQUAL could help service providers identify core service quality attributes since SERVQUAL alone is not considered to have non-linear impact on quality attributes (Ho, Feng, & Yen, 2014). On the other hand, Kano's model makes the implicit assumption that each dimension can be identified by comparing the frequencies of the results from the Kano evaluation table. An attribute is identified based on the highest frequencies, which consecutively disregards the other attribute that had slightly lower frequencies. Therefore, the result from Kano's model combined with SERVQUAL provides profounder information and a different perspective of service quality assessment results.

RESEARCH METHODS

Subjects

The target population included 410 overseas tourists, who stayed at hotels or guesthouses located in Luang Prabang, using the convenience sampling technique. There were 203 (48.78%) male tourists and 207 (51.22%) female tourists. The majority age of the subjects ranged between 20 and 29 years old (46.83%), followed by between 30 and 39 years old (25.37%). The majority of the subjects' income ranged from below $10,000

(29.02%), from $20,001 to $30,000 (18.05%) and from $40,001 to $50,000 (12.44%). The subjects came from all continents, but most were from Eastern Europe (40.00%), Asia (22.93%) and North America (18.68%). A total of 86.34% of the subjects were visiting Luang Prabang for the first time, while only 6.10% had visited it three or more times. The reasons the subjects had decided to visit Luang Prabang were for its culture (51.27%) and its natural environment (48.73%).

Questionnaire

The subjects responded to a set of questions in a questionnaire. The questionnaire was written in English based on SERVQUAL and translated into two languages, Thai and Chinese. The translation was done by professional native speakers. The questionnaire consisted of three parts. Part A was to assess the expectations and satisfaction regarding service quality. Part B was to classify Kano's service quality attributes. Part C collected background information. Part A and Part B consisted of the same five dimensions and items, namely, service tangibles, service reliabilities, service responsibilities, service assurance and empathy toward customers. In Part A, each dimension consisted of five items measured twice by a 5-point Likert scale (1 = very low to 5 = very high), once for expectation levels and once for perception levels. In Part B, the subjects were instructed to respond to each item with positive and negative assumptions, referring to Kano's model. The positive statement asked subjects to respond to "If the hotel performs this service, how do you feel?" for each item. The negative statement was "If the hotel does not perform this service, how do you feel?" The choices were "I like it this way," "It must be that way," "I am neutral," "I can live with that way," and "I dislike that way." The content validity of the questionnaire was assessed by five experts in both the business field and research. The overall reliability of the questionnaire in terms of expectations and perceptions were 0.971 and 0.957, respectively. The Cronbach's alpha of all five dimensions were higher than 0.800 as shown in Table 2.

TABLE 2
Reliabilities of Each Dimension of Service Quality Expectations and Perceptions of Hotels and Guesthouses

Dimensions	Number of Items	Expectations Cronbach's alpha (n = 410)	Perceptions Cronbach's alpha (n = 410)
Service Tangibles	5	0.857	0.841
Service Reliability	5	0.921	0.874
Service Responsibility	5	0.911	0.842
Service Assurance	5	0.929	0.865
Empathy Towards Customers	5	0.929	0.882
Overall	25	0.971	0.957

The data analysis techniques used in assessing the level of tourists' expectations and perceptions of service quality were descriptive statistics. The data analysis techniques used in comparing the tourists' expectations and perceptions of service quality was the dependent-samples t-test. The gap score of each response was calculated by the difference between perception and expectations of service quality. The gap scores were used to build a service quality matrix.

Kano's model was applied in classifying service quality attributes. Each response to a positive statement was paired with the response to a negative statement. Then, the results from pairing were classified into different attributes according to Kano's model shown in Table 1.

Finally, the classified results from Kano evaluation table were mapped together with the results from the service quality expectations and gap score onto the expectation-service gap matrix.

FINDINGS

The results of the level of tourists' expectations and perception of service quality were assessed using descriptive statistics. Fig.2 displays the summary of means of each item's expectations and perception score. Most of the items had perception scores that were higher than the expectations score except for items Q9, Q10, Q13 and Q17, which were 'Availability of the service personnel when needed', 'Provision of adequate information about the service delivered', 'Ability to handle customer complaints efficiently' and 'Seek the best for the interests of customer'.

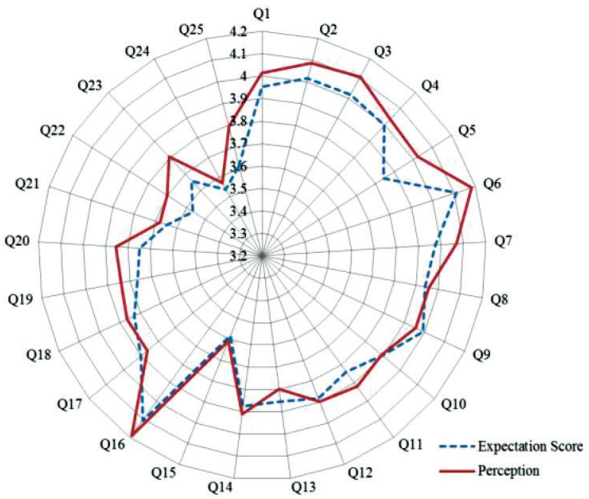

Fig.2: Summary of tourists' service quality expectations and perception.

The means of each item are displayed in Table 3 to Table 7. The tourists visiting Luang Prabang had the highest expectations of hotels and guesthouses services in terms of willingness to help customers ($\bar{x}$ = 4.11), friendliness and courtesy of the service personnel ($\bar{x}$ = 4.11), providing service as promised ($\bar{x}$ = 4.02) and completion of promised tasks ($\bar{x}$ = 4.02). In overall perspective, the service quality dimension that tourists expected the most was responsiveness ($\bar{x}$ = 3.98). On the other hand, the tourists' lowest expectations were for ease in getting information about the services ($\bar{x}$ = 3.54) and the modern-looking and well maintained service equipment and facilities ($\bar{x}$ = 3.57). In overall perspective, the service quality dimension for which tourists had the lowest expectations was service tangibles ($\bar{x}$ = 3.62).

For tourists' perception of the service quality of hotels and guesthouses in Luang Prabang, the tourists had the highest perception for friendliness and courtesy of the service personnel ($\bar{x}$ = 4.19) and willingness to help customers ($\bar{x}$ = 4.18); this trend matched that for tourists' expectation. Even though the expectations for these two items were high, perception of them were higher, which suggested that hotels and guesthouses in Luang Prabang performed better than expected in these areas. The tourists' lowest perception was for ease in getting information about services ($\bar{x}$ = 3.57), which matched the score for their lowest expectation. Despite receiving the lowest mean, perception of ease in getting information about services still exceeded tourists' expectations.

The results of comparing hotels and guesthouses' service quality perceptions and expectations and the Kano attributes are shown in Table 3 to Table 7. The results of this study for the dimension of reliability as shown in Table 3 indicated that all items in this dimension had perception scores exceeding the expectations scores, thus making all the gap scores positive. However, only the differences between the two means of overall, completion of promised tasks (Q3) and no unexpected service costs (Q5) showed statistical significance. When comparing with other dimensions, reliability received higher expectations and perception. Even though the results showed an overall positive gap and the 'no unexpected service costs item' gained a significant positive perception, Kano's model emphasised that this service should be carefully maintained or it could cause dissatisfaction.

TABLE 3
Summary of Means, Gap Scores, t-test and Kano Attributes in the Reliability Dimension

Reliability	Expectations $\bar{x}$	Perception $\bar{x}$	Gap Score	t-test	p-value	Kano
Q1. On time service delivery	3.95	4.02	0.07	-1.51	.132	I
Q2. Provide service as promised	4.02	4.09	0.07	-1.81	.071	I
Q3. Completion of promised tasks	4.02	4.11	0.09	-2.38	.018*	I
Q4. Keep accurate records	4.00	4.04	0.04	-1.07	.283	I
Q5. No unexpected service costs	3.84	4.02	0.18	-3.34	.001**	O
Overall	3.96	4.05	0.09	-2.44	.015*	

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

TABLE 4
Summary of Means, Gap Scores, t-test and Kano attributes in the Responsiveness Dimension

Responsiveness	Expectations $\bar{x}$	Perception $\bar{x}$	Gap Score	t-test	p-value	Kano
Q6.Willing to help customer	4.11	4.18	0.07	-1.66	0.098	I
Q7.Prompt response to customer request	3.97	4.07	0.1	-1.89	0.06	I
Q8.Sincere interest in problem solving	3.94	3.96	0.02	-0.65	0.517	I
Q9.Availability of service personnel when needed	3.99	3.96	-0.03	0.56	0.58	I
Q10.Provision of adequate information about the service delivered	3.90	3.89	-0.01	0.00	1	I
Overall	3.98	4.01	0.03	-0.84	0.401	

Table 4 and Table 5 show that there was no statistical difference between perceptions and expectations in both the responsiveness and assurance dimensions. However, there were some negative gaps in the availability of the service personnel when needed (Q9) and the provision of adequate information about the service delivered (Q10); though they were not statistically significant, these services should receive special attention to improve future service quality. In the meantime, Kano results of all indifferent attributes suggested that these services were not on the crucial list because tourists felt indifferent towards them whether or not these services were provided.

TABLE 5
Summary of Means, Gap Scores, t-test and Kano Attributes in the Assurance Dimension

Assurance	Expectations $\bar{x}$	Perception $\bar{x}$	Gap Score	t-test	p-value	Kano
Q11.Instilling confidence in customers	3.84	3.92	0.08	-1.87	0.062	I
Q12.Service personnel's product knowledge and competency	3.88	3.90	0.02	-0.38	0.705	I
Q13.Ability to handle customer complaints efficiently	3.85	3.80	-0.05	1.20	0.232	I
Q14.Service personnel's professional appearance and behaviour	3.88	3.91	0.03	-0.85	0.398	I
Q15.Fluent and understandable Communication with customers	3.58	3.61	0.03	-0.63	0.53	I
Overall	3.82	3.83	0.01	-0.24	0.81	

TABLE 6
Summary of Means, Gap Scores, t-test and Kano Attributes in the Empathy Dimension

Empathy	Expectations $\bar{x}$	Perception $\bar{x}$	Gap Score	t-test	p-value	Kano
Q16.Friendliness and courtesy of service personnel	4.11	4.19	0.08	-2.13	.034*	O
Q17.Seek the best for the interests of the customer	3.90	3.86	-0.04	0.31	0.758	I
Q18.Attention to individual customer's needs	3.83	3.86	0.03	-1.34	0.18	I
Q19.Convenience of service availability	3.77	3.84	0.07	-1.89	0.06	I
Q20.Flexibility in services according to customer demands	3.75	3.85	0.10	-2.25	.025*	I
Overall	3.87	3.92	0.05	-1.73	0.085	

For the empathy dimension shown in Table 6, all items' service gap scores were positive except for 'Seek the best for the interests of the customer' (Q17, gap score = -.04); however, the difference was not statistical. The 'Friendliness and courtesy of service personnel' and 'Flexibility in services according to customer demands' (Q16) perception item significantly exceeded their expectations, with a 0.08 and 0.10 gap score respectively. The "Friendliness and courtesy of service personnel" item not only received the highest perception and exceeded expectations, it was also classified into a one-dimensional service quality attribute, according to Kano's evaluation table.

Table 7 displayed the detailed results of the last dimension, tangibility. Despite the tangible dimension having the lowest expectations and perception, every item had a higher perception than expectations. The difference between perception and expectations in the overall outlook, the 'modern-looking and well maintained service equipment and facilities' (Q22) feature, the 'sufficient service equipment and facilities' (Q23) feature and the 'decoration and design to elicit the customer's trust' (Q25) feature were statistically significant. The results of Kano's model showed that tourists in Luang Prabang felt indifferent towards the tangibles offered by the hotels and guesthouses. This means that whether hotels and guesthouses offered these service quality items or not, neither satisfaction nor dissatisfaction was felt by the tourists. This results matched the tourists' main reasons for visiting Luang Prabang i.e. for its culture and natural environment.

TABLE 7
Summary of Means, Gap Scores, t-test and Kano Attributes in the Tangibles Dimension

Tangibles	Expectations $\bar{x}$	Perception $\bar{x}$	Gap Score	t-test	p-value	Kano
21.Advanced reservation technology	3.65	3.68	0.03	-0.88	0.379	I
22.Modern-looking and well maintained service equipment and facilities	3.57	3.70	0.13	-2.97	.003*	I
23.Sufficient service equipment and facilities	3.66	3.80	0.14	-3.27	.001**	I
24.Easy to get information about the services	3.54	3.57	0.03	-0.87	0.386	I
25.Decoration and design to elicit the customer's trust	3.61	3.79	0.18	-3.58	.000**	I
Overall	3.62	3.71	0.09	-2.57	.010*	

To establish understanding of the level of acceptance of the specific quality characteristics, the relationship between the expectations score and the service gap score were plotted based on the IPA model. The following steps were followed to obtain the graph depicted the relationship between the expectations and service gap score:

- Determine the service gap score from the difference between expectations and perceptions scores.
- Calculate the overall mean expectations and service gap scores.
- Plot the expectations and gap scores of each attribute.
- Plot the means of expectations and gap scores to divide the graph into four quadrants.

There were six items located in quadrant I, demonstrating the strength attributes of the service of hotels and guesthouses in Luang Prabang. The reliability dimension was the strongest attribute amongst them as four of its five items were located in the quadrant, with the remaining one item having a slightly below-average expectation than the lowest service gap.

On the other hand, in quadrant I, the high expectations with high service gap quadrant demonstrated the critical service quality attribute that needed attention from hotels and guesthouse providers. There were eight items located in this area, four of which received negative service gap scores. These four service quality attributes, which needed immediate attention, included availability of service personnel (Q9), the provision of adequate information about service delivered (Q10), the ability to handle customer complaints (Q13) and seeking the best for the interests of customers (Q17).

Four attributes were located in quadrant III, depicting low expectations but a high service gap. This meant that these attributes should receive due consideration, though with lower priority than the rest in quadrant I. Last of all, the 11 attributes in quadrant IV should have their current quality maintained even though customer expectations were not high.

By incorporating the Kano results in the expectations service gap matrix as seen in Fig.3, the priorities and importance of service quality attributes were determined. 'Friendliness and courtesy of service

personnel' (Q16) and 'No unexpected service costs' (Q5) were classified as one-dimensional service attributes. 'Friendliness and courtesy of service personnel' was located in the high expectations-low service gap quadrant, which represented that customers expected high service quality; in this case it was ranked second, which is a relatively high expectation. Although the hotels and guesthouses performed well enough, being a one-dimensional attribute this meant that their failure to perform this service quality could lead to customer dissatisfaction. Therefore, amongst other items in the high expectations-low service gap quadrant, 'Friendliness and courtesy of service personnel' should be carefully attended to. The 'no unexpected service costs' item received an average expectations score from customers and the highest perception exceeding the expectations score.

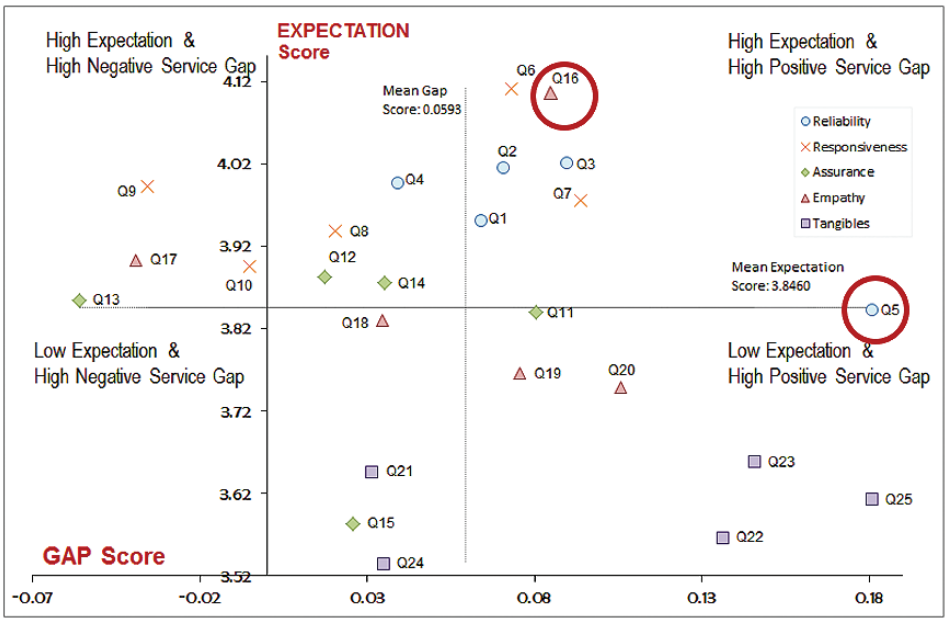

Fig.3: The expectations-service gap matrix.

DISCUSSION AND CONCLUSION

Enhancing service perception to meet customers' expectations is an imperative task of every hotel and resort in Luang Prabang. Understanding the strength and weakness of their service quality attributes can provide insight for service operation and planning. According to this study's findings, the reliability dimension of Luang Prabang hotels and resorts was the strongest dimension amongst all the others. Perception significantly exceeded expectations for this dimension. According to recent research by Jussem, Chan, Chung, and Kibat (2014), reliability is also one of the most important factors

in determining overall satisfaction of eco-tourists in Greater Satang Island, Malaysia. The service quality attribute that should be concentrated on was shown to be 'No unexpected costs'. Although the performance of hotels and resorts was highly satisfactory to customers, Kano's model results indicated that it was a one-dimensional attribute. Therefore, the hotels and resorts should maintain their quality level as failing to do so could lead to customer dissatisfaction. Another service item that should not be ignored is 'Provide service as promised'. This service item received the highest expectations score. When examining the results from Kano's model in detail, it could be seen that the indifference attribute obtained the highest response (35% of total responses). However, the one-dimensional attribute was close behind at 31%. Although Kano's model suggested that only the highest responses should be considered, the second ranking should not be ignored as the responses were close and the expectations were high. Therefore, 'Provide service as promised' should also be carefully maintained for there is a possibility, based on the results of this study, that without it, customers will be dissatisfied.

The responsiveness dimension received mixed results. Two of its five items received positive service gap scores higher than average and were located in the excellent service quality area in Quadrant II of the expectations-service gap matrix. On the other hand, the other three items were located in the concentrate-here quadrant. Out of these three items, two received negative service gap scores. Upon close examination, it could be seen that responsiveness as a service quality should be improved; this was related to the inadequacy of both service personnel and service information. Therefore, while the hotels and resorts in Luang Prabang need to maintain their positive outlook and enthusiasm in responding to customers, they should increase the number of their staff and improve the availability and quality of their service information. The emphasis on importance of responsiveness in hotel service quality is consistent with findings of other research, and this suggests that decent responsiveness in hospitality is a high expectation of customers and contributes to tourists' satisfaction (Tsitsiloni, Grigoroudis, & Zopounidis, 2013; Jussem, Chan, Chung, & Kibat, 2014).

According to the findings, service personnel should not only improve in terms of adequacy, but also in their knowledge and skills. The t-test and Kano's model of the assurance dimension results did not explicitly show that this dimension required critical attention. However, the results of the expectations-service gap matrix indicated that three of its five items were located in Quadrant I, which meant special attention was needed. The hotels and resorts should improve their service personnel's professional appearance, behaviour, knowledge, skill and ability to handle customers. Another interesting finding was that the lowest expectations of tourists in Luang Prabang was for 'fluent and understandable communication with

customers' from hotel and guesthouse staff (Q15). Perception of this service item was not high either although better than expected. Although the Kano's model result showed that the first-ranking attribute of this item was indifference (39% of the respondents), the second-ranking attribute showed that 29% of the respondents found it attractive. Therefore, improving this service quality attribute could generate higher satisfaction amongst customers of hotels and guesthouses.

The strength of the empathy dimension lay in the friendliness of the service personnel, which gained a significant and the highest positive score and was located in the excellent area, Quadrant II, of the expectations-service gap matrix. Nevertheless, it was classified as a one-dimensional attribute by Kano's model. This depicted that if hotels and guesthouses in Luang Prabang failed to deliver such service, it could cause customer dissatisfaction. Therefore, they should consider 'Friendliness and courtesy of service personnel' as a critical service quality. On the other hand, the weakness of the empathy dimension was in seeking the best for customers. The result corresponded with the assurance and responsiveness dimension results, including negative service scores for ability to handle customer complaints, availability of service personnel and adequate information about service. It is possible that the cause of the problems could be similar. A further process would be needed to identify the cause and solve the problems. As suggested by Stefano, Casarotto Filho, Barichello and Sohn (2015), service providers need to understand that service quality values can be identified by observing the management process, following a technological system and prioritising human relationship in the organisation. Well-defined service processes and well-trained service personnel, thus, could improve customer satisfaction.

Luang Prabang is a tourist attraction known by its World Heritage values of outstanding culture, historic significance and architecture. It is a small local city that maintains indigenous lifestyle. The majority of the questionnaire respondents gave culture and natural environment as reasons for visiting Luang Prabang. Hence, the one of the lowest expectations of hotel and resort service quality was for modern, well-maintained washroom facilities, in the dimension of tangibles. Research into hotel service quality in other developing countries such as Sri Lanka and Bangladesh has also shown that tangibles received low service quality expectations from customers (Karunaratne & Jayawardena, 2010; Mazumder & Hasan, 2014). Moreover, the service quality perception of tangibles significantly exceeded customer satisfaction, which indicated that customers did not expect the service but the service providers could provide satisfactory service. The result from Kano's model indicates that the customer felt indifferent towards this service quality attribute. Therefore, tangibles as a service quality attribute of Laung Prabang hotels and resorts should be maintained for future customers without awarding them high priority.

In summary, the strengths of hotels and resorts in Luang Prabang lie in their process of service reliability and the willingness and friendliness of their service personnel. The important service quality that needs first priority in improvement is personnel service skills and communication skills. Although the quality of service tangibles are not important in customer perception, Luang Prabang's status as possessing World Heritage architecture should be continuously maintained as it is the main attraction for tourists.

By incorporating the SERVQUAL, the IPA matrix and Kano's model, this study gained insight into the service quality of Luang Prabang's hotels and resorts from different assumptions and perspectives. Further studies based on the qualitative method is highly recommended to gain an understanding of cultural contexts of service providers and to compare them with customer perspective.

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A Study on Information Served by Sport Tourism Staff (Caddies) to the Golfers for Developing Instruction Package

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ABSTRACT

The present study is part of the research "Japanese instruction package for developing sport tourism staff (caddies)" and is aimed at studying the information that Sport Tourism Staff (Caddies) need to serve golfers. At Dongpookerd Golf Course, Phitsanulok, the working population includes 200 caddies and 11 executives of the golf course. The sample for this study was 132 caddies chosen by systematic random sampling. The sample size was calculated based on Yamane Taro's (1960) work. The tools of this research were two checklist questionnaires for studying the needs and expectations of executives to caddies and for studying the information that sport tourism staff (caddies) need to provide assistance to golfers. The results showed that the first three levels of qualification and situation expected by the executives were 1) service mind ($\bar{x}$ = 4.73), 2) golf course rules ($\bar{x}$ = 4.64), and 3) knowledge and perception of responsibility and duty (4.64). In addition, the results also showed that the information that caddies needed most to provide assistance to golfers was about the golf course: field condition, out of bounds, relief area without penalty, water hazard, bunker and tree (3.90). Next was information about course fee and service fee ($\bar{x}$ = 3.71) and the third was information about golf rules, etiquette and directions in which the golfers hit the balls ($\bar{x}$ = 3.67).

Keywords: Information, sport tourism staff, caddies

INTRODUCTION

The needs analysis process is the first step in constructing instructional media that can be used to solve learning problems. The most famous instructional medium is the instructional package. A lot of instructional package research and development in Thailand lacks needs analysis aimed at target groups. Only behavioural objectives are set up and become the core of content. Naksawat (2012), who pointed out this

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lack, constructed an instructional package on "Communicative French for Tourism by Video" for hotel receptionists in Phitsanulok Province, Thailand. The results of efficiency were 92.53/84.83 and there were significant differences between the pre-test and post-test at a significant level of 01. The package developing process is shown as follows:

1) Study previous research about construction of the instructional package.
2) Study the French language syllabus of Rajabhat Pibulsongkram University and other French language textbooks.
3) Put down the structure of the instructional package.
4) Design the concept and behavioural objective of the instructional package.
5) Develop the instructional package.
6) Submit the draft of the instructional packages to a French native speaker and
7) Improve the draft and try it out based on the 80/80 standard.

Although this research targetted hotel receptionists who are post-experiencers of Language for Specific Purposes (LSP), a needs analysis of the receptionists was not carried out. According to Robinson (1991), post-experiencers are defined as learners who have a career in their field of choice. In this case, the Language for Specific Purposes (LSP) course focussed on the specific language needs that would help them to cope with the communicative demands they faced in their work.

Basturkman and Elder (2004, p. 672) defined "Language for Specific Purposes (LSP)" as language learning and teaching that is based on the communicative needs of the speaker in the work place and in his or her career. LSP covers three basic demands in language learning:

1. Matching language with learners' specific purposes
2. Applying formal language in the classroom to real-life situations such as at the work place
3. Understanding that the needs of learners affect learning outcomes

There are two main processes in LSP. One is needs analysis and the other is description of language use. LSP divides courses into the pre-experience course and the post-experience course (Robinson, 1991). The pre-experience course is for the learner who would like to work in an expectative career while the post-experience course is for the learner who already has a career in his or her chosen field.

Golf has become a fast growing tourism business in Thailand that attracts a lot of golfers from overseas. One of the major group of people who visit Thailand for golfing are the Japanese; therefore, preparing sport tourism staff to serve this specific group of golfers efficiently is necessary. There have been attempts to develop staff training courses focussing on this area. As mentioned above, the LSP process requires needs analysis of post-experiencers as a key process in the construction of the instructional package for developing sport tourism staff (caddies). In order to do so, it is important to find out what executives hoped their staff would be

able to do or tell golfers. Furthermore, it was necessary to find out what information caddies needed to convey to golfers. This research implemented a needs analysis of caddies as well as expectations of the golf course executives in terms of staff qualifications and information served by caddies to develop the content of the instructional package. The objective of this study was to study the information served by sport tourism staff (caddies) to golfers as well as the qualifications expected of caddies.

MATERIALS AND METHODS

The instruments of the study were two questionnaires: a questionnaire used to investigate executives' needs and expectation of caddies and a questionnaire used to study the information that sport tourism staff (caddies) need to provide to golfers. The research used a sample of caddies from Dongpookerd golf course in Phitsanulok province, which has 200 caddies and 11 golf course executives. The research sample involved 132 caddies; the figure was calculated based on Yamane Taro's (1967) work and the caddies were chosen by systematic random sampling. After the questionnaires were administered anonymously, the structure and content for a Japanese instructional package were designed based on data collected from the questionnaires.

RESULTS AND DISCUSSION

The information that sport tourism staff need to provide to golfers and needs and expectations of executives to caddies were the focus of this study. The results of the study are shown in Table 1 and Table 2.

TABLE 1
Mean of Needs and Expectations of Caddies Perceived by Executives

Qualification and situation	$\bar{x}$	SD
1. a service mind	4.73	0.47
2. golf course rules	4.64	0.50
3. knowledge and perception of responsibility and duty	4.64	0.50
4. understanding rules and protocol concerning golf as a sport	4.55	0.52
5. accuracy of counting and writing down scores	4.55	0.52
6. knowledge of golf equipment and how to use it	4.45	0.52
7. ability to tell the dangers related to golf as a sport	4.18	0.40
8. knowledge of nature of body and kinesiology	3.27	0.65
9. skills of golfing	3.27	0.65

Table 1 shows that executives had high expectations of caddies in the area of possessing a service mind ($\bar{x}$ = 4.73) and golf course rules and knowledge and perception of responsibility and duty ($\bar{x}$ = 4.64).

TABLE 2
Mean of Information that Caddies need to give to the Golfer

Information	$\bar{x}$	SD
1. golf course; ground condition, out of bounds, relief area without penalty, water hazard, bunger, trees	3.90	0.92
2. course fee and service fee	3.71	0.98
3. rules and etiquette surrounding golf as a sport	3.67	0.70
4. direction of a golf ball	3.67	0.97
5. course and caddy reservation	3.64	0.87
6. introducing golf equipment; golf club number	3.58	0.94
7. offering food and beverage	3.47	1.22

Table 2 shows the perceptions of caddies of the information they need to give to golfers. The highest score was for golf course; ground condition, out of bounds, relief area without penalty, water hazard, bunger, trees.

The two tables above present the differences between what executives and caddies see as being important regarding how they can provide good service to Japanese golfers. The differences are probably based on their prior experience, duties and responsibilities. The executives, as personnel who took care of the business, would tend to pay more attention on the calibre of the caddies as staff who provide service to golfers and who are representatives of the golf courses. The caddies, on the other hand, pay more attention on the information at hand that they would need to provide to golfers on the golf courses. The information mentioned came with the need of language for specific purposes. In this case, it would have to be the Japanese language in order to provide specific information about golf and golf courses to Japanese golfers. This would lead to the need for a Japanese course for tourism sport staff (caddies).

In order to develop a Japanese instructional package, this information from the results presented was taken into account and was used to plan the content of a Japanese instructional package as presented in Table 3.

TABLE 3
Contents of Japanese Instructional Package

Contents
1. Greeting and introducing oneself
2. Giving golf course information
3. Rules and protocol
4. Direction of a golf ball and wind
5. Par, distance and green-line
6. Golf equipment
7. Telling score and service fee

Table 3 shows the possible seven lessons of the instructional package. The content of the instructional package should be written based on items in both questionnaires and with respect to the results shown in Table 1 and Table 2.

The content included in the instructional package should be taken from the analysis of the needs of caddies and executives as shown in Tables 1 and 2. Each dialogue and vocabulary item in each lesson of the instructional package should be related to the situation collected by the process of needs analysis on LSP.

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An Evaluation of Cultural Heritage Tourism Destination Attributes for Delighting Visitors: A Case Study of the Ban Chiang Archaeological Site

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ABSTRACT

The purpose of this research was to adopt the refined Kano's model, customer satisfaction index and the Importance-Satisfaction model to identify and evaluate the quality of tourism destination attributes at the Ban Chiang Archaeological Site in order to provide a reference for improving and enhancing its cultural heritage tourism management. A questionnaire was designed based on the 6A's framework of tourism destination attributes including attraction, accessibilities, activities, availability, accommodation and ancillary services. A total of 397 valid questionnaires were analysed. The results revealed that all of 30 cultural heritage tourism destinations were one-dimensional quality attributes (O). All attributes resulted in satisfaction when fulfilled and in dissatisfaction when not fulfilled. The satisfaction increment index (SII) of these attributes was between 0.58 and 0.76, while the dissatisfaction decrement index (DDI) was between -0.50 and -1.00. These indicated that all quality attributes were a great influence on customer satisfaction. At the same time, it was found that if all of them were not fulfilled, the influence on customer dissatisfaction became stronger. Furthermore, there were 14 quality attributes categorised under high value-added attributes which could fulfil customers' satisfaction at a higher level. Among high value-added attributes, there were five attributes that had high SII and high DDI, so the Ban Chiang Archeological Site should fulfil these requirements as its first priority. Only one attribute should be improved immediately while the remaining five attributes should be continuously fulfilled to gain competitiveness in the future.

Keywords: Cultural heritage tourism, quality attribute, Refined Kano's model, satisfaction, dissatisfaction

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INTRODUCTION

Cultural heritage tourism plays an important role in terms of community, economic and

social development in several countries. It is a rapidly growing segment of the tourism industry in Thailand as well. Evidence of this is seen in the increasing volume of both Thai and foreign visitors who seek culture, history, archaeology and interaction with local people. World Heritage sites are among the most popular destinations in cultural heritage tourism. A critical factor of cultural tourism attractions is to develop a cultural heritage site to express its own outstanding and unique identity (Gaffar, Wetprasit, & Setiyorini, 2011). In accordance with the study of Tipawanna and Katawandee (2014), in the view of indigenous people, the factors affecting cultural tourists' choice of destination were opportunity for high community participation in tourism development, unique physical and aesthetic features of the site and ease of access, respectively. Moreover, concerned stakeholders have indicated that environmental management around the sites could enhance the attractiveness of the sites.

The Ban Chiang Archaeological Site is one of five World Heritage sites in Thailand. It is a prehistoric human habitation and burial site located in the Ban Chiang Sub-district, Nong Han District of Udon Thani Province in northeast Thailand. In 1992, this site was announced as a World Heritage site by UNESCO. Ban Chiang is well-known as a prehistoric community with its own agriculture, animal domestication, metallurgical expertise and unique painted pottery. According to the statistical data of the Ban Chiang National Museum, the number of visitors in 2013 totalled 239,997 persons, which is a gradual increase from the period 2009 to 2012, with an average growth rate of 3% per year.

To sustain and develop its status as an attractive tourism destination, the Ban Chiang Archaeological Site has to offer an amalgam of tourism products and services to meet visitors' needs. It is necessary for it to classify and analyse the product and service requirements that influence visitor satisfaction. Although there has been some ecological and archeological field research in this area, limited literature exists on Ban Chiang from a cultural tourism management context. Hence, this research aims to identify and evaluate the quality of tourism destination attributes at the Ban Chiang Archaeological Site, in order to provide a reference for improving and enhancing its cultural heritage tourism management by adopting the refined Kano two-dimensional quality model, customer satisfaction index and the Importance-Satisfaction model.

LITERATURE REVIEW

The Ban Chiang Archeological Site

The Ban Chiang Archaeological Site is located in the Nong Han District, Udon Thani Province, Thailand. The site was first discovered in 1966. It is considered by scholars to be the centre of a remarkable phenomenon of human, cultural, social and technological evolution. The major advancements in technology include agriculture, animal domestication, ceramics and metallurgy, all of which are evident in the archaeological records of this site. Also, evidence such as the many burials,

rich in ceramic and metal grave goods, reveals an increasing economic prosperity, a distinctively developed culture and the social complexity of successive communities in Ban Chiang (Guide to Ban Chiang National Museum, 2009). In 1992, Ban Chiang was listed as World Heritage Site Number 359, following the registration criteria: "It represents a rare and unique monument or it attests to a tradition or civilization that is either active or already extinct."

The site is protected under the Act on Monuments, Ancient Objects, Art Objects and National Museums of 1961. The Fine Arts Department, Ministry of Education is directly responsible for the organisation and management of the site. Three must-visit places are: the Ban Chiang National Museum, the Archeological Pit and Tai Phuan House. The Ban Chiang National Museum was established in order to conserve and exhibit the artifacts excavated from the site during the period 1974 to 1975. Many archaeological artifacts (such as pottery, implements and ornaments of bronze and iron) are still in situ, providing a complete picture of the original culture and helping to promote the awareness of value and importance of the preservation of cultural heritage as a legacy for future generations. The Archaeological Pit is located in Wat Pho Sri Nai, about 500 metres to the east of the Ban Chiang National Museum. It is a public open-air museum. Tai Phuan House is outstanding in terms of architectural art conservation, which has brought it the Architectural Conservation ASA Award 2007 from the Association of Siamese Architects Under Royal Patronage.

Review of Tourism Destination Attributes

For cultural heritage tourism, destination attributes are part of the products that influence tourist perception and impression, leading to tourist satisfaction (Gaffar, Wetprasit, & Setiyorini, 2011). In this regard, Buhalis (2000) proposed the 6A's framework to indicate the attributes of a tourism destination, which are described as follows: 1) Attraction represents a natural, hand-made, artificial, purpose built, heritage, special events; 2) Accessibility refers to entire transportation system comprising routes, terminals and vehicles; 3) Amenities refers to accommodation, catering facilities, retailing and other tourist services; 4) Availability means pre-arranged service, pre-coming communication, the quality of welcoming and the quality of information; 5) Activities represent all the activities at the destination that tourists can participate in during their visit; and 6) Ancillary services refers to services used by tourists such as banking, telecommunications, posts and hospitals etc. To understand how tourists perceive an attribute as an attraction, the Ban Chiang Archaeological Site can improve or develop this attribute to increase tourists' satisfaction.

Review of KANO's model

To be successful in the long run, an organisation should focus its efforts primarily on understanding customers' needs and expectations in order to meet their requirements. In the past, customer satisfaction was considered in one-dimensional terms – the greater the ability

to fulfil a desired quality attribute, the higher the level of customer satisfaction. However, there are some quality attributes that do not lead to a high level of customer satisfaction even though they are fulfilled to a great extent for customers. Kano, Seraku, Takahashi and Tsuji (1984) developed the Kano model, based on the Two Factor Theory proposed by behaviourist Herzberg, in order to gain a better understanding of how customers evolve, evaluate and perceive quality attributes. They viewed satisfaction and dissatisfaction as two independent concepts in the mind of customers. They proposed a model to consider two dimensions of the fulfilment of requirement qualities and customer perception of satisfaction, as illustrated in Fig.1. Based on Kano's model, quality attributes can be divided into five categories as follows:

- Attractive quality attribute: An attribute that will lead to customer satisfaction if it is present; however its absence will not lead to customer dissatisfaction. This attribute is neither demanded nor expected by customers. It is referred to as the excitement need;
- One-dimensional quality attribute: An attribute that will lead to customer satisfaction if it is present, but which will lead to dissatisfaction if it is absent. The greater the degree of fulfilment from this attribute, the greater the degree of customer satisfaction and vice-versa. It is referred to as the performance need;
- Must-be quality attribute: An attribute that will not significantly lead to customer satisfaction if it is present; however its absence will lead to customer dissatisfaction. Customers consider this attribute as a prerequisite. It is referred to as the basic need;
- Indifferent quality attribute: An attribute that will lead to neither customer satisfaction nor dissatisfaction if it is present or absent. It is referred to as the neutral need; and
- Reverse quality attribute: An attribute that will lead to customer dissatisfaction if it is present, but which will lead to customer satisfaction if it is absent. It is referred to as the reverse need.

Fig.1: Kano's two-dimensional model.
Source: Kano (2002)

According to their quality attributes, products and services can be offered to meet different requirements. Matzler and Hinterhuber (1998) developed a two-dimensional quality element classification table as illustrated in Table 1.

TABLE 1
Two-Dimensional Quality Element Classification Table

Positive \ Negative	Like	Must-be	Neutral	Acceptable	Dislike
Like	O	A	A	A	O
Must-be	R	I	I	I	M
Neutral	R	I	I	I	M
Acceptable	R	I	I	I	M
Dislike	R	R	R	R	O

Note: A is Attractive quality, O is One-dimensional quality, M is Must-be quality, I is Indifferent quality, R is Reverse quality

Source: Matzler, K. and Hinterhuber, H. (1998)

Review of the Refined Kano's Model

Although Kano's model is extensively applied in the area of product and service development and improvement, it has the shortcoming of taking into account the degree of importance of certain quality attributes. A firm may have the technical or financial reasons due to which it cannot develop or improve several quality attributes simultaneously. This should be the decision criterion that has the greatest influence on customer satisfaction. Thus, Yang (2005) proposed the refined Kano's model that increases the importance of quality attributes categorising from four categories to eight categories, illustrated in Fig.2 and described as follows:

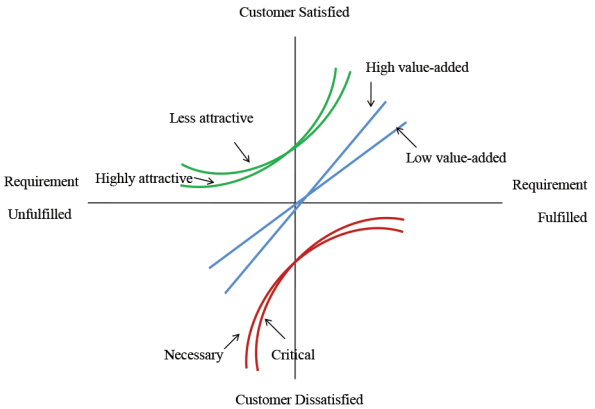


Fig.2: Refined Kano's two-dimensional model.
Source: Yang, C. (2005)

1) The must-be quality is divided into:
   1.1) Critical quality attributes: Customers view these attributes as crucial and having a high level of importance. Thus, a firm must provide these requirements perfectly.
   1.2) Necessary quality attributes: Customers view these attributes as essential but at a lower level of importance. Thus, a firm may fulfil these requirements at certain levels to retain customer satisfaction.
2) The one-dimensional quality is divided into:
   2.1) High value-added quality attributes: These attributes can fulfil customer satisfaction at a higher level. Thus, a firm should try to provide these requirements for customers.
   2.2) Low value-added quality attributes: These attributes can fulfil customer satisfaction but at lower levels. Thus, a firm may fulfil these attributes at an acceptable level to avoid customer dissatisfaction.
3) The attractive quality is divided into:
   3.1) High attractive quality attributes: These attributes are deemed as a firm's strategies to have high levels of attraction for potential customers. Thus, a firm should offer these requirements to customers.
   3.2) Low attractive quality attributes: These attributes are considered to have little attraction for potential customers. Thus, a firm may discard these requirements in view of cost considerations.
4) The indifference quality is divided into:
   4.1) Potential quality attributes: These attributes have the potential for gradually changing the excitement quality attributes. Thus, a firm may adopt these requirements as strategies to attract customers in the future.
   4.2) Care-free quality attributes: These attributes are not attended to by customers. A firm only considers whether or not customers are satisfied and may not offer these requirements in view of cost considerations.

Generally, there are different needs and expectations in each market segment, thus it is essential to know the effect of the existence and absence of a product or service attributed to customer satisfaction. Kuo (2004) proposed the customer satisfaction index. The satisfaction increment index (SII) indicates the influence of an attribute towards fulfilling customer satisfaction while the dissatisfaction decrement index (DDI) indicates the influence of an attribute in not fulfilling customer satisfaction. The equation is as follows:

$$SII = \frac{(A + O)}{(A + O + M + I)}$$

$$DDI = \frac{(O + M)}{(A + O + M + I) \times (-1)}$$

The SSI that is closer to 1 indicates greater influence on customer satisfaction whereas the DDI is closer to 1 and indicates greater influence on customer dissatisfaction. Based on the refined Kano's model and these coefficients, the Ban Chiang Archaeological Site can function better with a better understanding of the most important and beneficial quality attributes when planning or improving products and services.

The Importance Satisfaction Model (I-S Model)

The increasing competitive intensity to satisfy customers at a high level is a key success factor in the long run. To achieve high customer satisfaction, a firm should prioritise quality attributes that have high importance levels and low satisfaction levels. Yang (2003) developed the Importance-Satisfaction model (I-S model) based on the Importance-Performance Model of Martilla and James (1977). Performance has been replaced by satisfaction. The I-S model can be used to analyse the current status of satisfaction and identify product and service items for improvement. In the I-S model, the horizontal axis presents customers' perceived importance of attributes while the vertical axis presents customers' experienced satisfaction in relation to these. Mean value of importance and satisfaction have been used to divide coordinates into four quadrants. The interpretation of the I-S model is graphically presented in Fig.3.

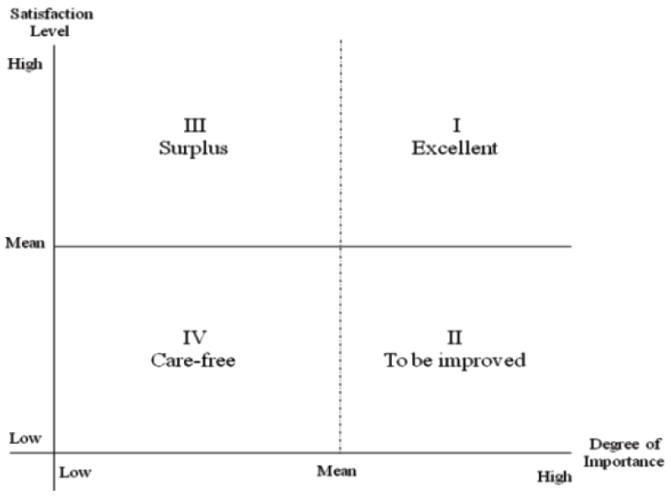


Fig.3: Importance-Satisfaction Model (I-S).
Source: Yang, C. (2005)

1) Excellent area: The attributes located in this area are very important to customers and for whom performance is satisfactory. Therefore, these attributes should be continually maintained.

2) To be improved area: The attributes established in this area are perceived to be very important to customers, but they provide low satisfaction. Therefore, these attributes must be improved immediately.

3) Surplus area: The attributes positioned in this area are not very important to customers, but they provide quite satisfactory performance. As these attributes can be eliminated without incurring any negative impact on customer satisfaction, a firm should consider the resources spent on these attributes as being possibly surplus.

4) Care-free area: The attributes situated in this area have low importance to customers and they bring low satisfaction. Because these attributes have less impact on the whole quality-evaluation process, a firm should not be overly concerned.

Given the importance of tourist satisfaction, many researchers and practitioners have studied the quality of tourist destinations by using various methods (i.e. Tan & Pawitra, 2001; Fuchs, 2002; Pawitra & Tan, 2003; Fuchs & Weiermair, 2004; Fuller *et al.*, 2006). However, there are few empirical research findings and practice that adopt the integration of the refined Kano's model, customer satisfaction and the I-S model for quality improvement.

METHODOLOGY

This study used a descriptive research design and a cross-sectional survey. The subjects in this study were Thai tourists who visited the Ban Chiang Archeological Site. This study adopted randomly sampling and extracted 397 respondents for analysis.

A survey questionnaire was used to collect data from the target population. The questionnaire was divided into three parts: Part 1 was designed to measure cultural heritage tourism destination attributes based on functional (positive) question statements and dysfunctional (negative) question statements. Part 2 was designed to assess the importance and satisfaction of these attributes on a 7-point Likert scale. Section 3 collected demographical information of respondents.

Several methods were used in data analysis. Firstly, this study tested the internal consistency of each of the expectation and perception attributes. Secondly, second-order confirmatory factor analysis was used for the factorial validity of the 6A's framework using the LISREL programme for Structural Equation Modelling (SEM). Thirdly, this study

identified quality attributes by adopting the refined Kano's model to categorise the quality attributes of cultural heritage tourism. The SII and DDI were analysed to determine the improvement priorities. Then, a paired t-test was employed to test the significant difference between the two means of expectations and perceptions. An I-S model analysis was used to explore the product and service quality. Finally, some recommendations are provided at the end of this paper for improving the critical quality attributes.

RESULTS

Among the 397 valid respondents, 193 were male (48.62 %) and 204 were female (51.38 %); the majority were 20-29 years old (23.68 %) and below 19 years old (22.92 %); had a monthly income of 20,000-30,000 Baht (26.95 %) and above 30001 Baht (26.45 %); were public servants (28.72 %) and students (26.45 %); lived in the northeastern region (51.13 %) and central region (29.22 %); and were visiting for the first time (55.42 %). Motivation to visit the Ban Chiang Archeological Site was seen to be due to an interest in the arts and culture (22.03 %) and history (21.67 %).

The results of the reliability and validity tests conducted are shown in Table 2. A reliability coefficient was calculated to test the internal consistency reliability. The reliability coefficient of all quality attributes was 0.975, demonstrating convergent validity for the questionnaire. Six factors of these quality attributes had reliability coefficients ranging from 0.882 to 0.919.

Furthermore, second-order confirmatory factor analysis (CFA) was used to examine the construct validity of the cultural heritage tourism destination scale using Structural Equation Modelling (SEM). Because of the large sample, the chi-square statistic was 894.25 with a degree of freedom of 357 that was too high (Bagozzi & Yi, 1998). However, dividing the model chi-square by degree of freedom, the values of the normed chi-square (NC) of 2.50 indicated reasonable fit (Bollen, 1989). Moreover, the SEM statistics (for example, RMSEA = 0.06, NFI = 0.984, CFI = 0.991 and GFI = 0.869) reached the suggested confidence levels for this CFA model. Finally, most of the standardised factor loading were above the recommended value for a CFA of 0.40 establishing convergent validity (Anderson & Gerbing, 1988).

TABLE 2
Results of Second Order Confirmatory Factor Analysis

Quality attributes	Factor Loading	S.E.	R^2	Reliability Coefficient
Factor 1: Attraction	**0.856**	**0.053****	**0.733**	**0.904**
A1. Unique and possesses cultural value	0.843		0.662	
A2. An outstanding model in painting and sculpture	0.820	0.040**	0.620	
A3. A site worthy of history and historic events	0.729	0.042**	0.625	
A4. A surrounding structure of historic sites	0.812	0.045**	0.656	
A5. Showcases traditional way of life of local people	0.810	0.051**	0.620	
Factor 2: Activities	**0.983**	**0.061****	**0.967**	**0.882**
A6. A learning centre or activities for learning about cultural identity	0.812		0.511	
A7. Consistency between activities and the dominant tourist attraction	0.823	0.048**	0.560	
A8. Interpolate cultural and environmental consciousness during the visit	0.840	0.054**	0.632	
A9. Hospitality of local people	0.814	0.052**	0.645	
A10. Route arrangement and badge of knowledge for cultural study	0.857	0.061**	0.519	
Factor 3: Availability	**0.967**	**0.063****	**0.935**	**0.912**
A11. Availability of tour destination staff	0.881		0.497	
A12. Adequate tour destination staff	0.895	0.043**	0.517	
A13. Staff knowledge and competencies	0.826	0.045**	0.483	
A14. Courtesy of staff	0.834	0.050**	0.500	
A15. Informing visitors of what can be done or what cannot be done.	0.892	0.059**	0.652	
Factor 4: Amenities	**0.988**	**0.056****	**0.977**	**0.902**
A16. A service centre to provide information and publicity	0.887		0.594	
A17. Various media to provide information on the important places to visit	0.920	0.044**	0.630	
A18. Media providing information in multiple languages	0.812	0.049**	0.595	
A19. Convenient and safe path for tourist venues	0.936	0.050**	0.715	
A20. Leisure facilities such as video, map location and information headphone	0.851	0.049**	0.648	
Factor 5: Accessibility	**1.000**	**0.054****	**1.000**	**0.894**
A21. A public service system for travelling to tourist attraction sites	0.880		0.619	
A22. Internal vehicle to visit entire location of each destination in a tourist attraction	0.888	0.045**	0.595	
A23. Service infrastructure such as parking, seating and washrooms	0.846	0.046**	0.659	
A24. Clean, good and pleasant surroundings	0.787	0.046**	0.594	
A25. Safety of life and assets of visitors	0.792	0.048**	0.559	
Factor 6: Ancillary Services	**0.934**	**0.054****	**0.873**	**0.919**
A26. Unique local food restaurants	0.837		0.628	
A27. Clearly show prices charged for items such as tickets, food and souvenirs	0.899	0.040**	0.693	
A28. Souvenir shop offering unique and local products	0.903	0.046**	0.760	
A29. Valuable and functional souvenirs and handicraft	0.829	0.050**	0.592	
A30. Restaurants with a high standard of service and cleanliness	0.904	0.054**	0.598	

$^{**}p<0.01$

TABLE 3
Classification of Kano Cultural Heritage Tourism Quality Attributes

Quality attributes	A	M	O	I	R	Kano's Category	Refined Kano's category	SSI	DDI	Satisfaction	Importance	S-I	t-value
Factor 1: Attraction										**5.27**	**6.30**		
A1	94	42	199	62	0	O	High value-added	0.74	-0.61	5.22	6.34	-1.12	-9.00**
A2	86	56	171	84	0	O	High value-added	0.65	-0.57	5.24	6.26	-1.02	-8.40**
A3	98	27	195	77	0	O	High value-added	0.74	-0.56	5.40	6.41	-1.01	-8.35**
A4	96	44	184	73	0	O	High value-added	0.71	-0.57	5.30	6.24	-0.94	-7.73**
A5	87	47	173	90	0	O	High value-added	0.65	-0.55	5.24	6.26	-1.02	-8.42**
Factor 2: Activities										**5.11**	**6.18**		
A6	100	46	164	87	0	O	High value-added	0.66	-0.53	5.26	6.18	-0.92	-7.67**
A7	97	54	144	102	0	O	Low value-added	0.61	-0.50	5.17	6.15	-0.98	-7.97**
A8	84	45	169	99	0	O	High value-added	0.64	-0.54	5.19	6.20	-1.01	-8.28**
A9	80	61	173	83	0	O	Low value-added	0.64	-0.59	4.83	6.10	-1.27	-9.98**
A10	76	60	165	96	0	O	High value-added	0.61	-0.57	5.13	6.27	-1.14	-9.39**
Factor 3: Available										**5.14**	**6.10**		
A11	95	54	167	81	0	O	Low value-added	0.65	-0.56	5.11	6.05	-0.94	-7.49**
A12	88	55	161	93	0	O	Low value-added	0.63	-0.54	5.08	6.01	-0.93	-7.27**
A13	95	52	182	68	0	O	Low value-added	0.70	-0.59	5.11	6.07	-0.96	-7.68**
A14	86	50	214	47	0	O	High value-added	0.76	-0.66	5.29	6.22	-0.93	-7.11**
A15	85	55	165	92	0	O	Low value-added	0.63	-0.55	5.11	6.16	-1.05	-8.52**
Factor 4: Amenities										**5.11**	**6.15**		
A16	88	58	153	98	0	O	Low value-added	0.61	-0.53	5.04	6.13	-1.09	-8.67**
A17	77	60	152	108	0	O	Low value-added	0.58	-0.53	5.08	6.12	-1.04	-8.39**
A18	70	62	166	99	0	O	High value-added	0.59	-0.57	5.17	6.17	-1.00	-7.98**
A19	71	51	181	94	0	O	Low value-added	0.63	-0.58	5.09	6.16	-1.07	-8.67**
A20	84	72	159	82	0	O	Low value-added	0.61	-0.58	5.16	6.16	-1.00	-8.15**
Factor 5: Accessibility										**5.14**	**6.16**		
A21	75	59	169	94	0	O	Low value-added	0.61	-0.57	5.05	6.08	-1.03	-8.42**
A22	66	61	170	100	0	O	Low value-added	0.59	-0.58	4.96	6.02	-1.06	-8.55**
A23	84	72	159	82	0	O	High value-added	0.65	-0.62	5.19	6.18	-0.99	-7.92**
A24	85	54	191	67	0	O	High value-added	0.70	-0.62	5.25	6.24	-0.99	-7.92**
A25	56	65	203	73	0	O	High value-added	0.65	-0.68	5.21	6.28	-1.07	-8.41**
Factor 6: Ancillary Services										**6.15**	**5.13**		
A26	74	65	160	98	0	O	Low value-added	0.59	-0.57	5.09	6.13	-1.04	-8.38**
A27	61	78	175	83	0	O	Low value-added	0.59	-0.64	5.15	6.13	-0.98	-7.71**
A28	65	73	174	85	0	O	High value-added	0.60	-0.62	5.16	6.20	-1.04	-8.35**
A29	77	76	165	79	0	O	Low value-added	0.61	-0.61	5.14	6.15	-1.01	-8.06**
A30	81	76	153	87	0	O	Low value-added	0.60	-1.00	5.09	6.15	-1.06	-8.59**
									Overall Mean	**5.15**	**6.17**		

***p<0.01*

As shown in Table 3, all of the 30 quality attributes were of One-dimensional quality. Having obtained the results of importance, these quality attributes were then classified into two categories by adopting the refined Kano's model. There were 14 attributes categorised as high value-added. These items were unique and possesses cultural value (A1), an outstanding model in painting and sculpture (A2), a site worthy of history and historic events (A3), a surrounding structure of historic sites (A4), showcases traditional way of life of local people (A5), a learning centre or activities for learning (A6), interpolate cultural and environmental consciousness during the visit (A8), route arrangement and badge of knowledge for cultural study (A10), courtesy of staff (A14), media providing information in multiple languages (A18), service infrastructure (A23), clean, good and pleasant surroundings (A24), safety of life and assets of visitors (A25) and souvenir shop offering unique and local products (A28). These 14 high-value added attributes could fulfil customers' satisfaction at a higher level. The rest were low value-added attributes that could fulfil customer satisfaction but at a low level.

This study calculated the satisfaction increment indices (SII) and the dissatisfaction decrement indices of each attribute. The SII of the 30 quality attributes was between 0.58 and 0.76. The average mean of the SII was 0.641. The DDI of these attributes was between -0.50 and -1.00. The average mean of the DDI was -0.593. This study then developed a quadrant graph based on the average mean of the index values as illustrated Fig.4.

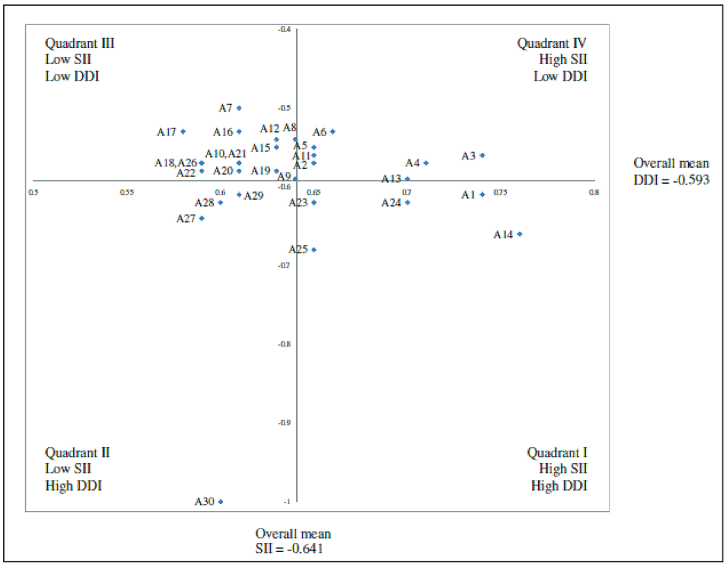


Fig.4: Customer satisfaction matrix.

Items in the first quadrant had a great effect on increasing satisfaction and reducing dissatisfaction. These items were unique and possesses cultural value (A1), courtesy of staff (A14), service infrastructure (A23), clean, good and pleasant surroundings (A24) and safety of life and assets of visitors (A25), which were of high concern to visitors. Therefore, the Ban Chiang Archeological Site should implement these requirements as their first priority because they can increase profitability and/or maintain competitiveness.

Items in the second quadrant did not have a great effect on increasing satisfaction; however, they could greatly reduce dissatisfaction. These items were clearly show prices charged for items such as tickets, food and souvenirs (A27), souvenir shop offering unique and local products (A28), the valuable and functional souvenirs and handicraft (A29) and restaurants with a high standard of service and cleanliness (A30). Therefore, the implementation of these requirements can be viewed as a conservative marketing strategy for the Ban Chiang Archeological Site.

Items in the third quadrant had a low effect on increasing satisfaction and reducing dissatisfaction. These items were the consistency between activities and the dominant tourist attraction (A7), interpolate cultural and environment consciousness during the visit (A8), hospitality of local people (A9), route arrangement and badge of knowledge for cultural study (A10), adequate tour destination staff (A12), informing visitors of what can be done or what cannot be done (A15), a service centre to provide information and publicity (A16), various media to provide information on the important places visit (A17), media providing information in multiple languages (A18), the convenient and safe path for tourist venues (A19), leisure facilities (A20), a public service system for travelling (A21), internal vehicle to visit entire location of each destination in a tourist attraction (A22) and unique local food restaurants (A26), which were of low concern to visitors. Therefore, it is not necessary for the Ban Chiang Archeological Site to pay too much attention to these items.

Items in the fourth quadrant had a great effect on increasing satisfaction, but a low effect on reducing dissatisfaction. These items were an outstanding model in painting and sculpture (A2), a site worthy of history and historic events (A3), a surrounding structure of historic sites (A4), showcases traditional way of life of local people (A5), a learning centre or activities for learning about cultural identity (A6), availability of tour destination staff (A11) and staff knowledge and competencies (A13), which were not valued by visitors. Therefore, the Ban Chiang Archeological Site might use these items as part of their competitiveness strategy in the future.

As shown in Table 3, the respective importance means, satisfaction means, gap means and t-values regarding all product and service quality attributes showed that

visitors had a level of satisfactions that was lower than their level of expectations, with a significant difference between the two. It implied that each quality attribute suffered a service quality shortfall. The largest gap score was found for "the involvement of local people in hospitality". The mean value of importance and satisfaction was used to divide coordinates into four quadrants. The interpretation of the I-S model integrated with the refined Kano's model and customer satisfaction is graphically presented in Fig.5.

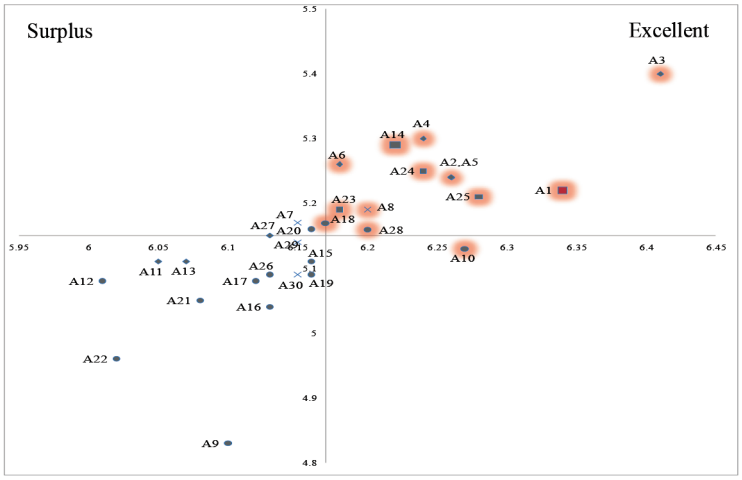
The attributes located in the 'Excellent area' consisted of the following items: unique and possesses cultural value (A1), an outstanding model in painting and sculpture (A2), a site worthy of history and historic events (A3), a surrounding structure of historic sites (A4), showcases traditional way of life of local people (A5), a learning centre or activities for learning (A6), interpolate cultural and environmental consciousness during the visit (A8), courtesy of staff (A14), media providing information in multiple languages (A18), service infrastructure (A23), clean, good and pleasant surroundings (A24), safety of life and assets of visitors (A25) and souvenir shop offering unique and local products (A28), which were very important to customers and for which performance was satisfactory. All of these were high value-added attributes. Five items, namely, unique and possesses cultural value (A1), courtesy of staff (A14), service infrastructure (A23), clean, good and pleasant surroundings (A24) and safety of life and assets of visitors (A25), were high SII and high DDI.

The attributes located in the 'To be improved area' were A10, 'Route arrangement and badge of knowledge for cultural study'. This should be improved immediately as it can fulfil customer satisfaction at a higher level.

The attributes located in the 'Surplus area' i.e. consistency between activities and the dominant tourist attraction (A7), leisure facilities (A20) and showing the price charged (A27) were not very important to customers, but performance in these areas was quite satisfactory. All of them were low-added attributes. A firm could be eliminated in view of cost considerations. However, only clearly showing the price charged (A27) had a low SII and a high DDI, which indicated that if unfulfilled, this attribute could lead to customer dissatisfaction.

The attributes situated in the 'Care-free area' included 14 items. The attributes situated in this area had low importance to customers as well as low satisfaction. All were low value-added attributes. However, valuable and functional souvenirs and handicraft (A29) and restaurants with a high standard of service and cleanliness (A30) had low SII and high DII. They should be offered to prevent dissatisfaction.

Appropriate actions for improvement are proposed based on the refined Kano's model, customer satisfaction index and the importance and satisfaction level as illustrated in Table 4.



Note: High value-added, Q1; High value-added, Q2; High value-added, Q3; High value-added, Q4; Low value-added, Q1; Low value-added, Q2; Low value-added, Q3; Low value-added, Q4

Fig.5: Integrated results of the refined Kano's model, customer satisfaction index and I-S model.

TABLE 4
Improving Actions Based on the Refined Kano's Model, Customer Satisfaction Index and I-S Model

Quality attributes	Refined Kano's category	Satisfaction Matrix	I-S Model
Improvement Action 1: To fulfil this requirement at the first priority and continuously maintain the service			
A1. Unique and possesses cultural value	High value-added	Q1	Excellent
A14. Courtesy of staff	High value-added	Q1	Excellent
A23. Service infrastructure such as parking, seating and washrooms	High value-added	Q1	Excellent
A24. Clean, good and pleasant surroundings	High value-added	Q1	Excellent
A25. Safety of life and assets of visitors	High value-added	Q1	Excellent
Improvement Action 2: To immediately improve this requirement to achieve acceptable level			
A10. Route arrangement and badge of knowledge for cultural study	High value-added	Q3	To be improved
Improvement Action 3: To continuously fulfil this requirement and develop it to gain competitive advantage in the future			
A2. An outstanding model in painting and sculpture	High value-added	Q4	Excellent
A3. A site worthy of history and historic events	High value-added	Q4	Excellent

Table 4 (continue)

A4. A surrounding structure of historic sites	High value-added	Q4	Excellent
A5. Showcases traditional way of life of local people	High value-added	Q4	Excellent
A6. A learning centre or activities for learning about cultural identity	High value-added	Q4	Excellent
Improvement Action 4: To continuously fulfil and maintain at the acceptable level			
A8. Interpolate cultural and environmental consciousness during the visit	High value-added	Q2	Excellent
A18. Media providing information in multiple languages	High value-added	Q3	Excellent
A28. Souvenir shop offering unique and local products	High value-added	Q3	Excellent
Improvement Action 5: To continuously maintain at the acceptable level to prevent dissatisfaction, but it may reduce the fulfilment level in view of cost considerations			
A27. Clearly show prices charged for items such as tickets, food and souvenirs	Low value-added	Q2	Surplus
A29. Valuable and functional souvenirs and handicraft	Low value-added	Q2	Care-free
A30. Restaurants with a high standard of service and cleanliness	Low value-added	Q2	Care-free
A7. Consistency between activities and the dominant tourist attraction	Low value-added	Q3	Surplus
A9. Hospitality of local people	Low value-added	Q3	Care-free
A11. Availability of tour destination staff	Low value-added	Q4	Care-free
A12. Adequate tour destination staff	Low value-added	Q3	Care-free
A13. Staff knowledge and competencies	Low value-added	Q4	Care-free
A15. Informing visitors of what can be done or what cannot be done	Low value-added	Q3	Care-free
A16. A service centre to provide information and publicity	Low value-added	Q3	Care-free
A17. Various media to provide information on the important places to visit	Low value-added	Q3	Care-free
A19. Convenient and safe path for tourist venues	Low value-added	Q3	Care-free
A20. Leisure facilities such as video, map location and information headphone	Low value-added	Q3	Surplus
A21. A public service system for travelling to tourist attraction sites	Low value-added	Q3	Care-free
A22. Internal vehicle to visit entire location of each destination in a tourist attraction	Low value-added	Q3	Care-free
A26. Unique local food restaurants	Low value-added	Q3	Care-free

DISCUSSION

Due to limited resources of the Ban Chiang Archaeological Site in crafting a competitive advantage, this study explored the strategic development and continuous improvement by adopting the refined Kano's model, customer satisfaction index and the I-S model.

With reference to the one-dimensional attributes with high value-added elements, high SII and high DDI, this site should implement the following requirements at the first priority: unique and possesses cultural value (A1), courtesy of staff (A14), service infrastructure (A23), clean, good and pleasant surroundings (A24) and safety of life and assets of visitors (A25). Consistent with the study of Vajčnerova, Šacha and Ryglova (2013), visitor satisfaction in this study too was influenced the most by the factors of natural attractions and uniqueness of destination, which were the primary offer of each destination while the factors of accommodation and accessibility were the secondary offer that could be modified. Improved accommodation and accessibility would significantly affect overall visitor satisfaction. Moreover, the study of Chang, Chen and Hsu (2012) showed that the staff's service-orientated contact elements were 'one-dimensional quality'. These elements were the first priority to provide tourists with a quality brand. Buhalis (2003) stated that destinations are amalgams of tourism products and services, offering an integrated experience to visitors. Developing a tourism product concerns both delivering a service and planning and conceptualising branding. Thus, understanding the entire service chain of visitors' needs will ensure satisfaction and encourage them to return and/or share their positive experience with others.

With reference to the one-dimensional attributes with high value-added elements and high DDI, the arrangement of routes and signs providing information for cultural study should be immediately improved (A10). According to the study of Chang, Chen and Hsu (2012), service-orientated contact elements and service providers operating businesses could concurrently increase customer satisfaction and decrease customer dissatisfaction. Cook (2001) stated that proper management of cultural routes and trails can help communities to conserve cultural heritage, generate a sense of belonging and enrich visitors' experience. The cognitive and emotional appreciation of routes depends on the appropriate information and presentation of story and storytelling conveyed to the visitors along the routes.

With reference to the one-dimensional attributes with high value-added elements and high SII, the following attributes should be used to make the site competitive in the future: the outstanding paintings and sculpture models (A2), valuable history and historic sites (A3), surrounding structures of historic sites (A4), tradition way of life of local people (A5) and learning centres or activities for learning (A6). Consistent with the study of Ngamsomsuke, Hwang and Huang (2011) showed that the overall architectural character of the location

and the designs surrounding cultural heritage sites were the two most important indicators for cultural heritage tourism. Protection and conservation of these assets are essential for the survival and sustainable growth of a cultural heritage site. Moreover, interesting activities and experiences should be offered at the sites to add value and make the sites unique, thus attracting new visitors as well as repeat visitors. Furthermore, Ho¨gstro¨m, Rosner and Gustafsson (2010) claimed that the physical service environment has a major influence on customer satisfaction and affects the destination's image.

With reference to the one-dimensional attributes with high value-added elements, the following attributes should be maintained at an acceptable level: interpolate cultural and environmental consciousness during the visit (A8) with high DDI, media providing information in multiple languages (A18) and unique local souvenir shops (A28). A destination is made up of physical, social and cultural features that render its atmosphere or ambience. Atmosphere includes features such as services for visitors, the local way of life and local history and folklore. These factors have power to draw visitors. Zeithaml and Bitner (2000) stated that atmosphere is appreciated through sensory channels. It makes the entire experience of visitors delightful. Atmosphere is the type of augmented product that should be developed in order to make a cultural heritage site unique. Consistent with the study of Chang, Chen and Hsu (2012), this study indicated that atmosphere-orientated contact elements play a powerful role in developing specific tourism niches.

CONCLUSION

The refined Kano's model is a useful practical tool for assessing important cultural heritage tourism destination attributes of the Ban Chiang Archaeological Site to make better decisions to improve its quality strategies. To integrate the refined Kano's model and customer satisfaction index into the I-S model enables the Ban Chiang Archaeological Site to obtain much more valuable and precise information for strategic planning. The results obtained in this study showed that all 30 cultural heritage tourism destinations had a one-dimensional quality attribute (O). The satisfaction increment indices (SII) of these attributes were in the range of 0.58 to 0.76, while the dissatisfaction decrement indices (DDI) were in the range of -0.50 to -1.00. There are 15 high value-added attributes which the Ban Chiang Archaeological Ssite should try to provide to visitors.

Along with high value-added attributes, five items had high SII and high DDI, indicating that these items had a great effect on increasing satisfaction and reducing dissatisfaction. Therefore, the Ban Chiang Archeological Site should fulfil these requirements as its first priority because they can increase profitability and/or maintain competitiveness. Moreover, there is one attribute that the Ban Chiang Archaeological Site should improve immediately. However, it may be

improved to the acceptable level as it has low SSI and low DII. Furthermore, there are five attributes that the Ban Chiang Archaeological Site should continuously fulfil and maintain as it can use these attributes to maintain competitiveness in the future. The Ban Chiang Archaeological Site should also fulfil the rest of the high value-added attributes at acceptable levels in order to prevent dissatisfaction. On the other hand, the 15 low value-added attributes should be maintained at the acceptable level but they may be reduced or discarded in view of cost considerations. Future discussion may further integrate the Quality Function Development (QFD) method to develop creative products and services of the Ban Chiang Archaeological Site. In the future, it may be expanded to cover other sites to develop and improve the quality attributes of cultural heritage tourism.

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Preparing Student Teachers to Integrate Science Content and Pedagogical Strategies in Instructional Activities

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ABSTRACT

Teachers' content knowledge and their skill in teaching concepts are key research findings for effective teachers. Collaborative learning is also found to be a way to improve teachers' subject-matter and pedagogical knowledge. Taking this into account, the practicum course in the second semester of the academic year 2013 at Udon Thani Rajabhat University was designed to prepare professionals in teaching for 4th year Thai student teachers. There were six stages of learning that the students had undergone in order to develop these professional skills. In this research, the following steps were followed. First, student teachers' misconceptions in specific science contents were diagnosed and discussed. Second, the students were made to participate in learning activities using those concepts. Third, a peer review of science lesson plans was analysed, focussing on an appropriate teaching method to teach specific science content and learning tasks. Peer discussions and reflections were conducted from Stages 4 through 6: collaborative lesson preparation; peer observation of teaching; and reflection. It was found that the student teachers held common misconceptions in science as revealed in the research findings. The preparation process was effective in that it gave a sense of ownership to student teachers working in collaboration with their peers to plan and implement instructional activities.

Keywords: Instructional activities, pedagogical strategies, science content, student teachers

INTRODUCTION

In today's world, the product of scientific inquiry has become necessary for everyone. In addition, science is viewed as a subject of life-long utility to all students, whether or not they enter science-related careers. Therefore, everyone needs to

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have scientific literacy to make decisions and debate scientific issues (Tasakorn & Pongtabodee, 2005). In Thailand, science education has been engaged in educational reform since 1997. Consequently, science is taught as a compulsory subject from primary education through secondary education in the Basic Education Curriculum. Therefore, all learners from Grade 1 to Grade 12 are offered science content, running from simple to more complex for higher grades. A success of the development of the national science curriculum in Thailand began around 1980, undertaken by the Institute for Promotion of Science Teaching (IPST), in Bangkok, and it attempted to implement science curriculum for schools (Fensham, 1986). The science curricular strands consist of: Living Things and Living Processes; Life and the Environment; Substances and their Properties; Force and Motion; Energy; Changing Process of the Earth; Astronomy and Space; and the Nature of Science. All learners are expected to learn the subjects with emphasis on connecting scientific knowledge with scientific processes, acquiring essential skills to search and construct knowledge through investigative processes and acquiring diverse problem solving experience, all of which create opportunity for student participation in all stages of learning. Also provided for are various hands-on activities suitable for learners in each level (IPST, 2008).

At the primary-education level, students are expected to integrate science content as follows: understand principles, concepts and theories of basic science; understand the nature of science; understand the inter-relationship and impact of science, technology, humanities and the natural environment; demonstrate applications of science and technology in daily life and society; promote the process of learning science and research in science and technology; and promote an open-minded, rigorous attitude towards science. At the lower-secondary level, general science courses are offered as core-compulsory and elective classes. At the upper secondary education level, students are divided into science and non-science streams. Physics, chemistry, biology and environmental science are offered as compulsory electives and free elective courses for science-stream students. Various units (modules) on physical and biological science are offered for non-science stream students. In order to achieve science literacy goals, the education system needs to be changed. Reform of the learning and teaching process is at the heart of the education reform. The IPST has emphasised that the aspects for quality science teaching should include the following: inquiry-based teaching/learning processes; higher-order thinking processes; scientific processes; communication and decision-making strategies; project-based skills; and using Information Technology for teaching/learning. However, there are limitations such as class size, lack of science equipment and a shortage of qualified teachers, and these affect the outcomes for students (Boonklurb, 2008).

There are many factors that are considered to influence student achievement such as: the appropriateness and currency of the curriculum; the availability and quality of textbooks; the appropriateness of the assessment system; the availability of laboratories and scientific equipment; the school environment in which learning takes place; and the quality of the science teacher (Ware, 1992). The teacher is generally viewed as the person who plays a key role in schools and classrooms. It is widely believed that the quality of teachers and teaching positively impacts student academic achievement. Across the educational systems of the world, the problems of teaching/learning management are all involved with hiring adequately qualified teachers (Ingersoll, 2007). Concern about the quality of teaching is related to the quality of teacher preparation programmes. Thus, there is a great deal of interest in ensuring that the teacher education programme is as effective as possible.

In Thailand, the Teachers Act of Buddhist Era 2546 (2003), Section 44, has enacted the qualifications of persons who are able to apply for a licence to practise a licensed profession, which consists of: being of age twenty years or older; having an education degree or equivalent or other educational qualification accredited by the Teachers Council of Thailand; and having completed practical training in an educational institution in accordance with an educational curriculum of not less than one year and having passed the practical training requirements in accordance with the criteria, procedures and conditions as established by the Teachers Council of Thailand Board.

Most recently, there were two teacher preparation systems for five-year education programmes. The first system, the Bachelor of Education Programme, requires student teachers to study course work for four years and spend one year in schools to gain teaching field experience. This programme is normally provided by the regular school programme at a Faculty of Education. The second teacher preparation system, the Graduate Diploma Programme in the Teaching Profession, requires students who already hold a tertiary degree to pursues the Diploma Programme in Teaching Profession at a Faculty of Education for one year. All teacher preparation programmes have to meet with the criteria, procedures and conditions set out by the Teachers Council of Thailand Board and the Thailand Qualification Framework (TQF).

Promoting the skills in teaching/ learning management is an important domain of the teaching profession preparation provided by the TQF. The ability of new teachers to incorporate and teach environmental concepts in their classrooms requires both content knowledge and skill in teaching the concepts (McDonald & Dominguez, 2010). The integration of content and pedagogical strategies in instructional activities is appropriate for the professional preparation of pre-service teachers. Researchers find

positive statistical relationships between student learning gains and teachers' content knowledge (Ferguson & Ladd, 1996) and skill (Ehrenberg & Brewer, 1994; Ferguson, 1991). In a context of science education, research findings have revealed that not only children, but teachers and student teachers, hold various misconceptions in science (Wandersee, Mintzes, & Novak, 1994; Chang, 1999). Many student science teachers, specifically, prescribe to numerous misconceptions, so the misconception on subject matter knowledge that these science teachers hold is likely to be transmitted to their students (Sheehan & Childs, 2013). Consequently, teachers must have sufficient knowledge to be able to know how to teach and organise a subject for their students (Shulman, 1986). Therefore, teachers' subject matter knowledge and skill expertise do affect student achievement.

Issues within science education focus attention on teacher's professional development in the science area and improving professional experience practice for pre-service teachers (Jones, 2008). No teacher education programme can prepare teachers for all the situations they will encounter (Liakopoulou, 2012). In teacher preparation programmes and professional development opportunities, models of good teaching to assist student teachers in developing their content knowledge and subject-specific knowledge should be provided and should be ongoing. Likewise, the integration of pedagogical strategies with subject matter and learning standards are continual. However, managing the complexity of the teaching process is not easy to shape. Research indicates that student teachers' development of pedagogical content knowledge can be fostered if they are supported in reflecting on teaching experiences individually and cooperatively (Huppertz, Massler, & Plötzner, 2005). Successful teacher education programmes should assist the student teachers to link the methodological theory and teaching practice. There are various models being developed to prepare teachers. A collaborative approach is viewed as the most effective of undergraduate teacher preparation programmes; many universities use this approach to prepare pre-service teachers (Junor, Clarke, & Kinuthia, 2009; Henry, Patterson, Campbell, & Yi, 2013). In addition, reflection on practice is also considered necessary for student teachers because it enables them to assess, understand and learn through their experiences (Ho, 1995; Liakopoulou, 2012).

Student teachers need to be well-grounded in the content that they are expected to teach and they also need to understand how knowledge is constructed, how the processes of inquiry are applied, and how learning standards and pedagogical strategies are analysed to create instructional activities that are appropriate for their students' level of knowledge and understanding. This study aimed to encourage student science teachers to integrate science content and pedagogical strategies in their instructional

activities, which can be aligned with science content areas that are constructed as well as with the learning standards and levels of the students. In order to prepare student science teachers to deliver knowledge and to assist in honing their professional skill in teaching science, a model for preparing them was constructed. In this study, collaborative learning was also found to be a way to improve student teachers' subject-matter and pedagogical knowledge.

RESEARCH QUESTIONS

The research questions examined in this work are: (1) How do student teachers understand science concepts? (2) How do student teachers integrate science content and pedagogical strategies in their instructional activities? (3) How do student teachers learn and perform through the model of the teacher preparation programme?

METHODOLOGY

Participants

The participants involved in this study were 4th year student teachers at Udon Thani Rajabhat University who enrolled in the school practicum course in the second semester of the academic year 2013. There were 29 students involved in this study.

Teacher Preparation Programmes

The teacher preparation programme was designed for student teachers to assist them to make the move from being the learner to being the teacher in the classroom. Collaborative learning and teaching was conducted on the practicum course designed for collaborative work and was reflected upon by the university advisor and the student teachers' peers. The student teachers underwent six stages of learning to develop professional skills. The stages were: (1) diagnosis and discussion of student teachers' conceptions of specific science content; (2) participation of the student teachers as learners in learning activities using those concepts; (3) analysis of peer review of science lesson plans, focussing on an appropriate teaching method for specific science content and learning tasks; (4) creation of lesson plans by the student teachers in a small group for field teaching experience in schools; (5) classroom teaching by student teachers while being observed by peers; (6) reflection on own and peers' performance by student teachers. All six stages of the process are detailed in following sections of this paper.

Identifying student teachers' science content knowledge. The participants in this study were undergraduate physics teachers. Three physics concepts that researchers have found to be difficult concern the topics of force and motion, electric circuits and astronomy phenomena. These topics were used to diagnose student teachers' science concepts. At the end of the programme, student teachers could identify their misconception.

Participating in learning activities. Learning activities related to the three topics were designed and implemented. The three topics were presented sequentially,

based on the nature of the subject matter. All learning sequences were based on inquiry and the inductive approach. Students derived general principles of the concepts from the data collected through observation. Because of time limitations for this stage, each learning activity took four hours. After the learning activities, all misconceptions regarding the three concepts were analysed and the teachers discussed how these misconceptions were connected through cause-and-effect relationships for the pupils they taught.

Reviewing the peer review of science lesson plans. Before having the student teachers create their own lessons, they were given peer reviews of science lesson plans from the Teacher Leadership for Science and Mathematics Instruction Change programme, a project created by the Institute for the Promotion of Teaching Science and Technology (IPST). IPST plays a major role in establishing standards for teaching and learning science. The student teachers analysed the lesson components, focussing on the learning activities and learning tasks and whether or not they were aligned with the nature of the content and the students' ability.

Creating their own lessons with their peers. All the student teachers created their own lessons and then implemented them in the classrooms. In preparation for field experience, the student teachers worked in small groups of five to six members. Before creating the lesson, a Content Representation Tool (CoRe), which consisted of eight questions (Loughran, Mulhall, & Berry, 2004) was presented to the student teachers followed by discussion to orientate them to the lessons. Then, the students had to answer the eight questions: (1) What do you intend the students to learn concerning this idea? (2) Why is it important for the students to know this? (3) What else do you know about this idea that you do not intend students to know yet? (4) What difficulties/limitations are connected with teaching this idea? (5) What do you know about student thinking that influences teaching about this idea? (6) Are there any other factors that influence your teaching of this idea? (7) What teaching procedures would you use, and why, for this idea? (8) How would you ascertain student understanding of, or confusion about, this idea? The members in each group helped each other to create a CoRe template. After completing the CoRe on the topics they planned to teach, they also helped each other to create the lessons. All the CoRe lessons received feedback from their peers, as well as from their university advisor.

Doing and observing the lesson implementation. The peer lessons were conducted by the student teachers in a primary school made up of students from Grades 1-5. While the student teacher conducted his or her lesson, the other members observed what happened in the classroom. All actions of the student teachers and the pupils were video-taped.

Reflecting on teaching/field experience. After teaching, all the student teachers would observe their class lessons via video tape. Then, the student teachers

read through all the reflection reports on what group members and the university advisor thought of their classroom management. Finally, the student teacher reflected upon the classroom practices that were observed.

Data Collection

For science concepts, three physics concepts held by the student teachers were analysed. The data were analysed using mean, standard deviation, percentage and the dependent t-test. For teaching skills, classroom observation, reflection after teaching and a collection of related documents were recorded as data.

RESULTS

According to the research questions, student teachers' understanding of subject matter, peer lesson plans, reflections on themselves and examining others' classroom practices were studied through both quantitative and qualitative data relevant to the questions. Based on the data collection, the research findings were compiled and reviewed.

Student Teachers' Science Concepts

Three physics concepts that were used to design the learning activities in this study consisted of force and motion, electric circuits and astronomy phenomena tests. Each of these subject areas was administered to the student teachers before and after implementing the learning based on inquiry and the inductive approach. The student teachers' understanding of science before and after participating in the three learning activities was also examined (see Table 1).

Student teachers' common misconceptions of force and motion. Twenty multiple-choice questions from the Force Concept Inventory (FCI developed by Hestenes, Wells, & Swackhamer, 1992) and the Force and Motion Conceptual Evaluation (FMCE developed by Thornton & *Sokoloff*, 1998) were used to evaluate the student teachers' understanding of force and motion concepts. It was found that the student teachers had similar common misconceptions about force and motion, as supported by science education research findings (Clement, 1982; Halloun & Hestenes, 1985). The force and motion concepts used in this study centred on Newton's laws of motion. The student teachers had difficulty with Newton's first law of motion, which states that an object remains at rest or in uniform motion in a straight line unless acted upon by an external force. Almost 70% of them believed that a moving object always exerted applied force i.e. no force, no movement.

For Newton's second law of motion, over 40% of them believed that heavier objects moved faster than lighter ones in free-fall motion, but that heavier objects moved more slowly than lighter ones on a horizontal path. More than half of them believed that a moving object would move following the path of an applied external force after it was kicked, no matter which direction the object moved in before.

For projectile motion, they believed that there was always force from a shooting source exerted on an object after it was shot because the object kept moving forward in a horizontal direction. However, for a package falling from a plane's luggage compartment, while the plane flew along a horizontal direction, 73% of them believed that the path of the package would lie behind the plane, where the package would drop. They did not think that the package followed a parabolic path and remained directly below the plane at all times. For Newton's third law of motion, applied to a case of collisions between a car and heavier trucks, 70% of the student teachers believed that the faster car exerted greater force on the slower or stationary truck. However, in the case of both moving at the same speed when they collided, 40% of the student teachers believed that the truck exerted a greater amount of force on the car than the car exerted on the truck.

Student teachers' common misconceptions of astronomy phenomena. There were 20 multiple-choice questions about astronomy phenomena used to evaluate student teachers' understanding of astronomy phenomena concepts. Based on the student teachers' answers, most of them knew that the rotation of the Earth caused the day-night cycle; however, 62% of them did not know why the sun is seen rising in the east and setting in the west. Of those responding, 76% believed that seasons are caused by the Earth's changing distance from the sun. Therefore, 90% of them did not know when the four seasons occurred in the northern and southern hemispheres. Of those responding, 76% did not know moonrise and moonset times. All of them did not know the reason why the eclipses occurred an average of one or two times every one or two years.

Student teachers' common misconceptions of electric circuits. The Determining and Interpreting Resistive Electric Circuits Concepts Test (DIRECT) developed by Engelhardt and Beichner (2004) with 29 multiple-choice questions was used to investigate the student teachers' understanding of electric circuits. Of those responding, 72 % believed that charges were used up in the production of light in a light bulb. Most of them (over 90%) were unable to answer how the power delivered to one resistor changed when one more resistor or a battery was added to the circuit. Of those students, 97% were unable to identify the schematic diagram of circuits. Almost 30% of them believed that a bulb would be equally as bright as when connected individually to an equal number of batteries, no matter how the battery was connected in a circuit. In addition, 62% of them believed that two batteries connected parallel to one another would make a bulb shine brighter than two batteries connected in a series. Of those responding, 50% were unable to identify the diagram of a complete circuit, and 86% were unable to identify a short circuit.

TABLE 1
Mean Scores (M), Standard Deviations (SD), Percentage and p-Values of the Pre- and Post-Test Results of the Test (25 Items) of the Student Science Teachers

Science Concepts		$\overline{X}$	S.D.	%	t	*p* (Sig.)
Force and motion	Pre-test	6.72	2.84	33.60	5.12	0.00
	Post-test	10.86	2.97	54.30		
Astronomy phenomena	Pre-test	7.31	2.50	36.55	5.00	0.00
	Post-test	9.97	3.13	49.85		
Electric circuit	Pre-test	8.93	2.23	30.79	4.56	0.00
	Post-test	11.65	2.35	40.17		

According to the student teachers' responses to the test, it was notable that their performance on the science test was significantly better after participating in the three learning activities ($p < 0.01$). The post-test mean scores were greater than the pre-test scores at a significance level of $\alpha=0.01$. It is suggested that the student physics teachers who participated in the learning activities had a better understanding of science concepts after participating in the learning activities based on inquiry and the inductive approach.

Student Teachers' Lesson Plans

All the student teachers' CoRe and lesson plans were presented and reflected on by the university advisor and peers. Firstly, the student teachers were divided into groups of five to six members and the group was tasked with creating their lesson plans together. The student teachers started to present their CoRe individually and received feedback recommendations from their group members.After they had all completed their CoRe, they created lesson plans, which were presented to their group members again. Next, their CoRe and lesson plans were presented to the whole class for feedback recommendations from the university advisor and peers.

Group 1. The core content for Grade 1 pupils consisted of materials used for making toys and common objects. These materials were used as criteria classification: The sun, the moon and the stars are in the sky. Four lesson plans were developed, each lasting one hour. To meet the requirements of their learning objectives, three teaching sequences i.e. introducing, teaching and summarising, were used to design the activities in all four lesson plans. Three lesson plans with material concepts were developed, then students were divided into small groups with four to five members to classify the provided materials into groups as their criteria set. After that, they summarised all the data. One lesson was with the stars in the sky, and the pupil was to observe and draw the stars in the sky. Questions were used throughout all the teaching sequences. Their instructional activities aligned with their learning objectives.

Group 2. The core content for Grade 2 students consisted of forces originating from a magnet, applications of magnets, electrical forces resulting from rubbing some materials together, electricity as a form of energy, household electrical appliances and the importance of the sun. Five lesson plans were developed with one hour allocated for each. For pedagogical strategies, the 5E's learning cycle was used to teach the forces originating from a magnet, applications of magnets, electrical forces resulting from rubbing some materials together and the importance of the sun. Five teaching sequences of the scientific method were used to teach the form of energy. Five teaching sequences of the experimental teaching method were used to teach about household electrical appliances. Students were divided into small groups with four to five members each, to work with provided materials as mentioned in the learning objectives in all the lesson plans. Questioning techniques were used throughout the learning activities.

Group 3. The core content for Grade 3 students consisted of effects of forces acting on objects, the Earth's force of attraction upon the objects, natural energy sources utilised for producing electricity, the importance of electrical energy and safe methods of electricity utilisation, rising and setting of the sun, the moon, cause of day and night and determining directions. Six lesson plans were developed with one hour for each. For pedagogical strategies, the 5E's learning cycle and a small-group activity, along with questioning techniques were used to conduct the learning activities in all lessons. Observations and data collected from experiments that were provided for teaching the effects of force acting on objects, along with the Earth's attraction force upon the objects, were shared. Videos and information sheets were provided to the students for learning about natural energy sources utilised for producing electricity, the importance of electrical energy and safe methods of electricity utilisation, the rising and setting of the sun, the moon, cause of day and night and determining directions.

Group 4. The core content for Grade 4 students consisted of functions of vascular bundles and stomata of plants and the factors essential for plant growth and photosynthesis. Five lesson plans were developed with two hours allotted for each lesson. For pedagogical strategies, the 5E's learning cycle and a small-group activity and questioning techniques were used to conduct learning activities in all the lessons. Observations and data collected from experiments were provided to conduct learning activities in all the lessons.

Group 5. The core content for grade 5 students, which consisted of the generation and propagation of sound, the generation of high-pitched and low-pitched sound, loud and soft sound and directions and the rising and falling phenomena of stars were created. Six lesson plans were developed with one hour provided for each lesson. For pedagogical strategies, the 5E's learning cycle and a small-group activity, along

with questioning techniques, were used to conduct learning activities in all the lessons. For the sound lessons, observations and data collection data from experiments were provided to conduct learning activities. For astronomy phenomena, demonstrations and star charts were used.

Student Teacher Reflections on Field Experience

Reflections from in-service teachers, the student teachers' group members and themselves were considered after all the student teachers had finished their teaching practice. All the student teachers observed each other's actions when learning activities were conducted. Then, they all analysed how they had acted, while conducting learning activities from video tapes and they also read each other's reflections on what others thought about their classroom management, based on feedback from the teacher and other group members. Finally, all the student teachers reflected on how well they had done in relation to their lesson plans as self-reflection. Based on the data collection, the reflections are shown below.

In-service teacher's reflection. Due to time limitation, a teacher who was teaching science in this school was unable to observe how all the student teachers conducted their lessons in class as she was the only science teacher in the school and taught science to Grades 1-5. Her reflections on how the student teachers did in the classroom were positive but general. She reported that the student teachers were well prepared to teach as they had all come equipped with their own lesson plans, which included worksheets and equipment for the activities. However, their classroom management skills were problematic, especially when it came to questioning as they proceeded without allocating wait time, and their methods of controlling the class while the students did their experiments.

Members' reflections. All the student teachers in each group observed how their peers had done in their classroom practice. The common reflection that all the student teachers reported was that they were well prepared to teach. They had worksheets, equipment, pictures, videos and questions geared towards students' interests. However, the common problems they reported about their peers' skills were: they could not control the class, especially when students started to talk with each other; and some did not answer students' questions. Examples of the members' reflections include:

She did well engaging of students' interest and well prepare lesson. However, while students make noise she was unable to manage this point.

She did a well start. She cannot control students while they are doing experiment with materials. She should wait time after raising questions. Students seem to talk much at the end of her lesson.

She did well engaging of students' interest and well prepare lesson. To do two hours teaching is too long for grade 2 students.

Self-reflections. The student teachers analysed their classroom teaching after viewing a video and reviewed feedback from their group members and considered the teachers' reflections, as well as their self-reports. All the student teachers mentioned that this had been a good, new experience for them and it helped them be prepared before going in to teach in their fifth year as students. They began to realise how primary school students thought, what their interests were and how they behaved. They began to know their limitations in content knowledge and teaching strategies. They had to prepare more material before teaching again.

CONCLUSION AND DISCUSSION

The study aimed to study student teachers' content knowledge and their skill in teaching science concepts by examining key research findings for effective teachers through the implementation of six stages of a teacher education preparation model. The research findings revealed that the student teachers held common misconceptions in science. The common misconception about force and motion for the student science teachers were: Motion is always caused by force; if there is no force acting on the object, it does not move; force is proportional to velocity of motion; gravitational force exerts on the object only when it moves down a sloping plane but on an upward slope, it needs external force to move; heavier objects take a shorter time to fall than lighter ones. These common misconceptions about force and motion that are shared by the student teachers are also reported in other research to be the common misconceptions among student teachers (Clement, 1982; Halloun & Hestenes, 1985). The common misconception about astronomy phenomena were: The sun rises exactly in the east and sets exactly in the west every day; the phases of the moon are caused by the shadow of the earth on the moon; the earth is farther away from the sun in winter and closer in summer. For concepts related to electric circuits, the common misconceptions were: Current is used up in circuits; one battery makes a bulb shine with a certain brightness, regardless of the configuration; the bulbs connected in the same branch are equally bright. These common misconceptions regarding electric circuits were also common among student teachers studied in other research (Shaffer & McDermott, 1992; Engelhardt & Beichner, 2004). The student teachers in this study had studied these three science concepts in high school and university courses, but they still held on to the misconceptions. It might be that these concepts are relevant to students' daily experience but not a focus in textbooks and traditional. The preparation process was effective, in that it gave a sense of ownership to the student teachers while working in collaboration with their peers to plan and implement instructional activities. Their science content knowledge was considered an important factor that affected their classroom management skills because each content area was constructed in specific ways by the scientists who used reasoning data and evidence to explain

natural phenomena. Therefore, if teachers hold misconceptions in science, they will transmit them to their students. One constructivist learning theory states that all knowledge is constructed from a base of prior knowledge, so the pre-knowledge of students should be considered in preparing learning activities. After the student teachers had participated in the learning activities based on inquiry and the inductive approach, they had a better understanding of science concepts. In addition, they had learnt the importance of creating their own lesson using inquiry as a base to help students overcome difficulties in science.

Analysing peer review lessons was seen as an important stage of the process because it helped student teachers to develop a deeper understanding of the relation of teaching/learning components, especially how to teach the specific content before they constructed their own lessons. Creating and implementing their lessons in class helped them to experience how students learnt, regardless of what they thought or how they prepared to help students learn. Reflection helped them to take note of what they did in the classroom that made their teaching more effective. Reflection supported the students in gaining meaningful insight on teaching and how to apply what they had learnt more effectively (Huppertz, Massler, & Plötzner, 2005; Junor, Clarke & Kinuthia, 2009; Liakopoulou, 2012; Henry, Patterson, Campbell & Yi, 2013). However, the student teachers seemed to see learning to teach as problematic. They frequently saw themselves as novice teachers who learn through trial and error in the practicum classroom. This process informed them that teaching as a professional must include providing different contexts for different students. Preparing student teachers to integrate science content and pedagogical strategies in instructional activities through these six processes can help them add to their knowledge base and professional skill of teaching science because this model was designed to assist student teachers in developing both their subject-specific knowledge and how to teach specific concepts. This is an important domain of the preparation for the teaching profession as provided for by the TQF and other research findings (Ehrenberg & Brewer, 1994; Ferguson & Ladd, 1996; McDonald & Dominguez, 2010).

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The Strategies Development for Enhancing Competitiveness of the Community Entrepreneur: A Study of the Ban Chiang World Heritage Site

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ABSTRACT

The Eleventh National Economic and Social Development Plan (2012-2016) allocated the biggest income distribution and infrastructure development to enable community entrepreneurs to grow efficiently and sustainably (Porter, 2003). Entrepreneurs have to adapt their business strategies related to internal and external quick-business (Mabry & Mabry, 1981). They should focus on strengthening their community by being self-dependent, maximising benefits of local resources and being governed by local residents (Katz, 1991). Thus, entrepreneurs are a crucial force for generating jobs and earnings and strengthening the community and country. The objectives of this research are (1) to study the internal and external factors that affect the competitive potential of entrepreneurs (2) to create potential competitive strategies for entrepreneurs and (3) to test and assess results of potential competitive strategies. The primary research methodology was SWOT analysis of local entrepreneurs' potential development; this included documentary research, interviewing, field observation and data analysing of tourist questionnaires by the Priority Needs Index (PNI) and entrepreneurs using factor analysis and structural equation analysis. The secondary research methodology was creating potential competitive strategies by the focus group and brainstorming. The tertiary research methodology was testing and assessing the outcome from the strategies performed by Repeated Measures ANOVA and Wilcoxon Signed Rank Test. The results showed that three factors were selected, namely, production, marketing and management, to be models of creating strategies with chi square = 66.61, p-value = 1.00, CFI = 0.95, GFI = 0.99 and RMSEA = 0.00. The competitive strategy used was based on the 4-C Model, including Capability Customer Communication and Culture. Twelve strategic activities including three dimensions were carried

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out. Four activities were performed by six entrepreneurs. After implementation of the 4-C Model by the six selected entrepreneurs, their competitiveness and operating bottom lines were found to be higher, significant at 0.05.

Keywords: Strategies development, competitiveness, community entrepreneur

INTRODUCTION

Thailand's economy and social development are guided by The National Economic and Social Development Plan. Initially, the government placed an emphasis on public infrastructure, believing that a good economy produces good citizens, thus the plan initially focussed on mega-projects that took used up natural resources without benefitting local residents, leading to inequitable income distribution and social inequality (Boontam Ratcharak, 2005; Suwakrit Sriputtha, 2006). Thus, the economic development plan did not produce sustainable development (Ricardo, 1951).

As self-resilience was of utmost importance, the Eleventh National Economic and Social Development Plan (2012-2016) made provisions to ensure efficient and sustainable income distribution and infrastructure (Taweesak Muencharoenjit, 2010) by strengthening domestic entrepreneurship (Porter, 2003). Applying conservative and modern cultures was essential for the development of unique products to meet the market demand (Low & MacMillan, 1988) and entrepreneurs adapted their business strategies, making internal and external quick-business changes (Mabry & Mabry, 1981).

Thus, local entrepreneurship was an income earner for the family, community and country. Local entrepreneurs focus on strengthening their community through self-dependence, maximising benefits of local resources and local potential (Katz, 1991). Thus, the local entrepreneurs were a crucial force in generating jobs and earnings and in strengthening the community and country.

The world heritage of Ban-Chiang, in Udon Thani province, is a famous historical tourist destination in Thailand. It is well-known among foreigners (Clinical Community Research Group, 2003) for its culture, lifestyle, community and local wisdom, in addition to its local products, especially attractively painted pottery and silk unique to the location, all traditionally produced, reflecting the pride and tradition of the community, who live a lifestyle inherited from their ancestors. All these add value to the tourism potential of the location (Cohen, 1996; Kotler & Keller, 2011).

The entrepreneurship community of Ban Chiang was founded upon the wisdom of the villagers. The products were crafted to be mainly used in daily life using natural materials and hand-making without the use of machines (Charuphan Charayophat, 1997). As local products were required to comply with industry standards for quantity, and due to differences in culture,

mindset and lifestyle, the entrepreneurs were forced to acclimatise themselves to the competitive environment by resorting to local wisdom for survival (Yuthasak Supasorn, 2013).

In the face of severe business competition and rapid technological and economic change, local entrepreneurs must apply strategic management (Ricardo, 1951) to adapt to and survive change. Business potential development should start with environmental analysis to create a suitable strategy for overcoming environmental challenges (Amnuay Weerawan, 1991; Porter, 2003) to gain competitive advantage with their existing potential (Fang, 1995) and to meet right customer demand and override economic conditions (Wheelan & Hunger, 1995).

The objectives of this study were:

1) To study the internal and external factors that affect the competitive potential of local entrepreneurs.
2) To create potential competitive strategies for local entrepreneurs.
3) To test and assess results of the potential competitive strategies.

RESEARCH METHODOLOGY

Primary Research

For a SWOT analysis of the potential for development of local entrepreneurs, two procedures were carroed out; the first was documentary research, interviewing and field observation to discover the issues that needed resolution and the second one was data collection to test the reliability, correctness of the data and to analyse inductive data to summarise the results.

The research population comprised four groups: (1) Local entrepreneurs from three subgroups i.e. village weavers, finery transformers and painting-potters (2) Entrepreneurs of local tourism (3) Government officers including museum's officers and Ban Chiang's sub-district officers (4) Tourists.

Qualitative data analysis was done by means of parallel analysis. Quality tests were conducted during fieldwork to collect data. Systematic and continuous data transformation and transcription of recorded interviews were carried out. Data preparation and data identification from three samples for each subgroup i.e. local entrepreneurs, tourism entrepreneurs and government officers was also undertaken.

Quantitative data analysis that was done included: (1) Data analysing of questionnaires filled in by tourists' by means of the Priority Needs Index (PNI), which was used to calculate all samples of tourists in February 2012. The figure obtained was 30,710 ones (National Museum of Ban Chiang, 2013) using Taro Yamane'sformula of 395 generated samples; (2) Data analysis of the questionnaires answered by the entrepreneurs amounted to 150 ones by means of factor analysis and structural equation analysis.

Secondary Research

To create competitive strategies for the entrepreneurs, the researcher organised a

workshop that was run by entrepreneurs who were experts and academicians. Comments and recommendations from each focus group was collected and then synthesised and later improved on by brainstorming.

Tertiary research

To test and assess outcomes from the strategies performed, data for each strategy were collected from a pre-test and post-test. The entrepreneurs' potential was assessed from data collected from each activity. The outcomes were compared by Repeated Measures ANOVA statistics. The variance of gross margin ratio after performing the strategies over four months was calculated using the Wilcoxon Signed Rank Test.

RESULTS AND DISCUSSION

Primary Stage: The results of Factor Analysis that Affected the Entrepreneurs' Competitiveness

TABLE 1
The Results of Strength and Weakness Analysis

	Strengths	Weaknesses
Production	-Diversity of lines -Seasonal usage of raw materials -Self-control -Long relationship and reliable producers	-Lack of intention to recruit staff -Not understanding core demands of contemporary customers -Productivity
Management	-Friendly locals were hired -Family-like staff	-Lack of provision of root cultures to services -Lack of cultural integration
Marketing	-Many repeat customers -Opportunity of distribution through e-commerce	-Lack of technological -knowledge -Lack of new market-discovery
Participation	-Productive assembling	-Assembling for bargaining power -Strong internal competition

TABLE 2
The Results of the Opportunity and Threat Analysis

	Opportunities	Threats
Tourism aspect	-Located in the centre of ASEAN -Well-known by foreigners -The product is a signature of tourism	-Lack of interconnection between hilighted places
Cultural and social aspects	-Outstanding culture -Unique finery and pottery	-Lack of business inheritance -Modern view of entrepreneurship that profits are more preferable than culture
Economic and governmental aspect	-Government support to use local cloth	-Wage inflation and lack of certain labour
Competitive aspect	-Unique lines of pottery -Opportunity of distribution -Plenty of natural resources -Development of services	-High cost of materials -Internal competition
Technology aspect	-Development of advertising technology	-Poor view of technology

TABLE 3
The Results of the Modified Priority Needs Index Analysis

Main issues	Average of Expectation	Average of Satisfaction	PNI modified	Priority
Shop's atmosphere	4.18	3.87	0.08	1
Shop's service	4.16	4.04	0.03	2
Shop's display and promotion	4.10	4.01	0.02	3
Value for money	4.19	4.17	0.01	4
Identity and Culture	4.34	4.40	-0.01	5
Utility	4.14	4.20	-0.01	6
Style and colour	4.14	4.25	-0.02	7
Quality and durability	3.98	4.25	-0.06	8

Other similar research based on interviews stating that in addition to the environment of local shops, the decorations they used, product arrangements and services (Cohen, 1996; Porter, 2003; Franzen & Smith, 2010), customer demand was also crucial. This information was obtained through interviews.

The initial test of the 109 questionnaires answered by the entrepreneurs provided a skewedness and kurtosis that were not more than ±1 for the four informative aspects, showing normal distribution after a structural equation analysis was conducted.

Correlative testing of the model assumption and empirical data revealed that primarily, the statistic results did not meet with a designated criterion. This showed a lack of fit between the model and the empirical data. Thus, the model was adjusted by a test of model generating (MG), taking into consideration the model modification indices, which considered theoretical ration and then adjusted the parameters one by one to allow for relative deviation until the final, useable model was obtained (Table 4).

TABLE 4
Results of Goodness-of-Fit Indices of Hypothesised and Revised Model

Indices	Recommended	Hypothesised Model	Revised Model
X^2		X^2 = 404.02, df=242	X^2 = 66.61, df=166
	(q=>.05)	(p-value = 0.00)	(p-value = 1.00)
GFI	≥0.90	0.76	0.99
AGFI	≥0.90	0.71	0.97
RMSEA	≤0.05	0.08	0.00
RMR	≤0.05	0.06	0.05
CN	≥200	70.08	590.66

The consistency index of the initial and final assumptions showed that the coefficient of the management affecting factor was equal to 0.42, that of the marketing factor was equal to 0.33, that of the production factor was equal to 0.23 and that of the participation factor was equal to -0.27 (Fig.1).

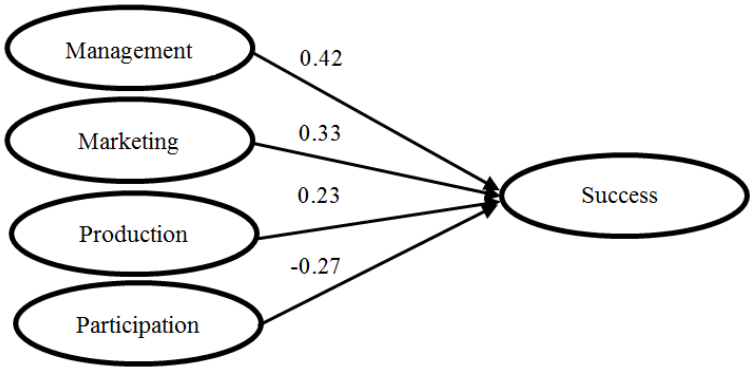

Fig.1: The results of the revised model.

During qualitative and quantitative analysis, three factors were selected as models for creating strategies; they were production, marketing and management. The coefficient of the participation factor was negative, meaning that this factor might be a threat to potential development (Howard & Klosler, 1991). Moreover, the participation factor was flawed, preventing the researcher from obtaining clear results.

Secondary Stage: The Results of Creating the Competitive Strategy for the Entrepreneurs

The researcher created and drafted strategies by applying strategic management (Wheelan & Hunger, 1991) principles. The selected competitive strategy was a 4-C Model (Fig.2), as shown below.

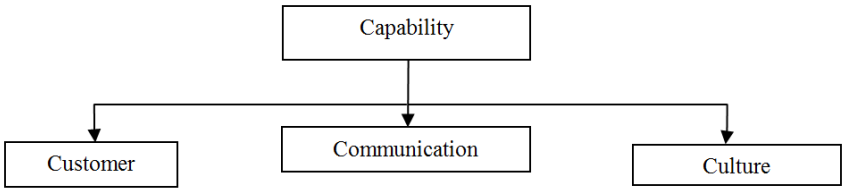

Fig.2: 4-C model.

(1) Capability: The operating potential was essentially dependent on the entrepreneurs (Pickle, Hall & Royee, 1990). This strategy placed emphasis on three aspects of capability: the customer, communication and cultural management.

(2) Customer: The ability to meet customer needs and to respond to common needs was as expected. Staff need to make a good impression by striving to build rapport with customers, entrepreneurs and tourism companies.

(3) Communication: Creating direct communication to meet customer needs by collecting information and analysing taste and seasonal trends, including implementation of e-commerce to extend communication (Kotler & Keller, 2011) is necessary.

(4) Culture: As entrepreneurship here is represented by tourism, it should reflect value and provide an exceptional experience for tourists. Entrepreneurs have to provide cultural management, such as using regional decoration, creating a native atmosphere and providing services to make a good impression (Smith, 1989; Pigram, 1993).

Consequently, the researcher drafted three designated strategies including (1) strategy to enhance productivity to meet customerdemand; (2) strategy to enhance competitive communication for local businesses; and (3) strategy to enhance cultural management. Each strategy comprised two activities, namely: (1) training and (2) a workshop simulating real-life situations and monitoring training results from time to time.

After that, the two groups received feedback from business experts, academicians and local business developers in a focus group conference. Finally, a summary of the activities, discussions and brain-storming, was carried out, with the following recommendations made:

(1) Each strategy should have been demonstrated at the designated worksite and the results shared with local entrepreneurs to highlight issues and devise solutions.

(2) The strategy offered to enhance competitive communication should have more content relating to participation in a marketing network and how to cooperate with others to plan promotions.

(3) The strategy to enhance productivity to meet customer needs should have more content on cost analysis and pricing.

A total of 12 activities were carried out, with four activities each targeting each of the three dimensions. Entrepreneur enchantment, therefore, comprised training, practising, insight observation, brainstorming, assessing and reporting.

Tertiary Stage: The Results from Analysing Implementation of the Strategies

The 12 strategic activities were performed by six entrepreneurs. Each activity was tested against the entrepreneur's potential

by means of the potential test, and the assessment was done using Repeated Measures ANOVA. The results are summarised below.

The value from Mauchly's Test of Sphericity was Mauchly's W = .084 with a sig. value = .111, which was higher than α = .05 (Accepted H0). As a result, the variance had compound symmetry so it could be read by F value from Sphericity Assumed, where the value of F = 145.199 and the sig. value = .000, which was lower than α = .05 (Rejected H0). Thus, the average point from the four post-tests was different in at least one pair (Table 5 and Fig.3).

TABLE 5
Pairwise Comparisons

(I) posttest	(J) posttest	Mean Difference (I-J)	Std. Error	Sig.[a]
Post-test 1	Post-test 2	-1.167	.363	.141
	Post-test 3	-3.389*	.442	.004
	Post-test 4	-7.611*	.505	.000
Post-test 2	Post-test 3	-2.222*	.141	.000
	Post-test 4	-6.444*	.436	.000
Post-test 3	Post-test 4	-4.222*	.372	.001

a Adjustment for multiple comparisons: Bonferroni.
* The mean difference was significant at the .05 level.

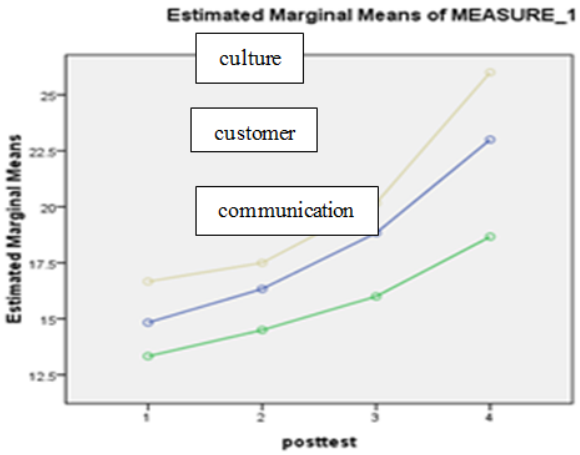

Fig.4: Estimated marginal means of the four post-tests.

As a result, the comparison between the average pair of the first and second post-test was not different because of the first activity was training for the unsophisticated entrepreneurs, practising and questioning. Other than that, the variance was significant at 0.05.

After four months of implementation, assessment was done by measuring different values from the average value of net-profit to the revenue ratio of the six entrepreneurs for the period using the Wilcoxson Signed Rank test. The test indicated that the results of the pre- and post- implementation of the strategies were different (Table 6).

TABLE 6
Wilcoxson Signed Rank Test

	N	$\overline{X}$	S.D.	Z	Sig
Pre-test	6	25.33	2.02	-2.201	.028*
Post-test	6	30.51	2.78		

* Significant at 0.05

CONCLUSION

In conclusion, studying the internal and external factors that affected the potential of entrepreneurial competition by data collection from stakeholders revealed four contributing factors including production, marketing, management and participation. From these strategies were created, applying administrative strategic schemes called the 4-C Model based on the following factors: capability, customer needs, communication and culture, to design a strategic framework. The framework was used to enhance the absolute potential of the three dimensions using four activities. In total, there were 12 activities. After the implementation of the 4-C Model with the six selected entrepreneurs, their competitiveness and operating bottom lines were higher. One clear improvement was in the way the entrepreneurs sought knowledge of customer needs to align their business offering to suit those needs. They also conducted product comparison with competitors in terms of quality and price, and distributed the information through appropriate channels. They took more care of their services and realised the significance of cultural services and made the most of local features and provision to enhance their business offerings.

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Surrealism on Advertising

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ABSTRACT

This research studied and analysed the creation of content, styles, types, meaning and interpretation of surrealistic advertisements. The study compared the surrealism of fine art and advertisements, their similarities and differences of the two models of the surreal: traditional and modern. The research was conducted using qualitative research methods and utilised a random brand advertising selection that was composed only of ads that used surreal images. Most of the samples were compiled from print advertisements including magazine ads, newspaper ads and clippings that were published both nationally and internationally on the internet, websites or blogs. An integrated analysis of theories and concepts from semiology theory, advertising creativity, surrealist creativity and marketing concepts were used to analyse and explain these results. The findings indicated that creative images in surrealistic advertising were mainly influenced by the paintings of Salvador Dali and Rene Magritte. Their works contain fantastic and incongruous imagery that affects advertising by means of unnatural, irrational juxtapositions and combinations. Techniques used by the works analysed were painting and computer retouched photography. The magnificent images and ironical appositions symbolised products, encoded products and serviced single-minded concepts or unique selling propositions in order to retain brand information and brand awareness and increase sales. During an epic competition among advertising companies and their profit earning enterprises, surrealist advertising was marketing niche specific products and had become a trend in advertising execution amongst these competitors. Surrealist ads were a very good alternative, which made an unparallelled impression in the consumer's mind.

Keywords: Surrealism, surrealist advertisement, traditional surrealist, modern surrealist

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INTRODUCTION

Surrealism and Significance of the Problem

Surréalism comes from the French *sur-* and *réalisme.* The accepted definition of surreal can be broken down into five specific categories: 1) Having qualities attributed to or associated with surrealism; 2) Having an oddly dreamlike quality; 3) Having the disorientating, hallucinatory quality of a dream; unreal; fantastic; 4) Characterised by fantastic imagery and incongruous juxtapositions; a great concourse of phantasmagoric shadows; 5) Resembling a dream; dreamlike, unreal: not actually such; being or seeming fanciful or imaginary. But the word surrealism defines an art form in two parts: 1) A 20th century art form in which an artist or writer combines unrelated images or events in a very strange and dreamlike way; 2) The principles, ideals or practice of producing fantastic or incongruous imagery or effects in art, literature, film or theatre by means of unnatural or irrational juxtapositions and combinations.

Surrealism is a style of painting of modern art. It is a cultural and art movement that started in the 1920s by the original member and leader, Andre Breton. It was the culmination of the writing of the surrealist group and it sought to dispel the 'Rationalism', which they thought had brought about the First World War. It identified the whole surrealist idea as a movement, with an agenda, rather than just a style of art. Andre Breton subscribed to socialist ideology and was part of the communist party, but the surrealists considered themselves apolitical. Some of these ads are derived from extracts from 'The Manifesto Surrealism'. (http://www.surrealists.co.uk)

Surrealism encompasses all genre of the arts, such as sculpture, music, literature, film and philosophy. "Surrealism is a sandbox of the human subconscious mind. Artists and writers of the movement believe surrealism to be a revolutionary philosophical movement first" (http://www.1stwebdesigner.com).

Surrealist artwork often features an element of surprise with random objects and fantastic unpredictable juxtapositions. It developed out of Dadaism during World War I, centred around Paris, France and quickly spread worldwide from the 1920s onwards (http://www.1stwebdesigner.com). The surrealist artists and intellectuals reformed the world in their own way. Sigmund Freud provided them with much material since he was a strong influence due to his tapping into the unconscious realm of the human mind. Surrealists were very interested in the subconscious: with dreams, hallucinations and trances, like the kind described in Freud's works. The artists, along with Andre Breton, made artwork, poetry and sketches under hypnosis and automatic writing. They produced surreal, dream-like and unconscious works. Salvador Dali's work is said to be the symbolic language of the subconscious: truly a universal language, it does not depend on education, culture or intelligence.

For marketing communications to be effective in its influence on the consumer's mind, there has to be a powerful strategy and tools for promotion. Advertising is an important tool for marketing promotion. It is a form of mass communication that involves the advertising agent with creative professionals. These artists are the source of encoded messages in advertisements through the channel-media. The media relay the message to the receivers, who are the viewers, readers and listeners. These are the target consumers, who then decode the message and provide their feedback or viewer response.

Advertising is a step-by-step operation of sophisticated strategic processing that is a series of creativity that combines both art and science. It is disciplined and creative. The discipline comes from a strategy of logical thinking through problems and coming up with messages that offer solutions. It is also the art of creative copywriting, using words or phrases that indicate a product's unique selling proposition (USP). The copywriter and the art director create the art direction. The team usually works together to devise an overall concept also known as the 'creative idea or big idea'.

Various artists may create or develop specific parts of an art piece or scene, but it is the charge of a sole art director to supervise and unify his vision. In particular, the art director is in charge of the overall visual appearance and how it communicates visually, stimulates moods, contrasts features and psychologically appeals to a target audience. The art director makes decisions about the visual elements used, what artistic style to use and when to use motion. One of the most difficult problems that art directors face is translating desired moods, messages, concepts and underdeveloped ideas into imagery. During the brainstorming process, art directors, co-workers and clients are engaged in imagining what the finished piece or scene might look like. At times an art director is ultimately responsible for solidifying the vision of the collective imagination while resolving conflicting agenda and inconsistencies between the various individual inputs (http://en.wikipedia.org/wiki/Art_director).

"A picture is worth a thousand words" – this saying underlines that a complex idea can be conveyed with just a single still-image (Moriarty, 1991, p. 52). It also aptly characterises one of the main goals of visualisation, namely, absorbing large amounts of data quickly. Effective advertising has attention-getting power, is interesting and enhances memorisation. To create attention-getting for ads is not easy, especially when it comes to print advertisements. The advertising delivers the big idea. It is a message execution that integrates the nonverbal-visual and verbal effectiveness. Pictures and illustrations are nonverbal aspects of an ad or commercial and carry fully half the burden of communicating the selling message. It creates the mood of the ad, determining the way it will feel to the audience. That mood flavours the verbal message, embodied in the copy and the illustration.

That mood is how ad concepts are executed from the standpoint of both art and copy. Therefore the execution in presenting visuals or illustrations is a very important factor in advertising communication. "The challenge is to find the best way that will stimulate the hoped-for response from the target audience" (Moriarty, 1991, p.52).

Advertising presentation techniques should have a distinctive characteristic and should differ from the competition. There are many picture presentation techniques such as a single product alone, a product in use, a product in a setting or a product with a celebrity.

> *Commercial and print ads use some form of appeal to reach potential customers. Advertisers use appeal to influence a customer to purchase a product or support a cause. Appeals speak to an individual's need, wants or interest. The most common advertising appeals include use of fear, humor, rationality, and sex or bandwagon propaganda* (Wimbush).

Surrealism is an outstanding technique in this regard. It is used to avoid the monotony of traditional advertising. Surreal visualisations create a complex advertising look. Its novelty and hyped, surprising and unusual visual images are used to present the concept or the products unique selling proposition. Surrealism, from fine art to commercial art, now influences visual works and creates effective advertising campaigns. In this aspect advertising is more interesting and creates a more memorable impact on the audience.

Hypotheses

Surrealism in advertising is merely used as an artefact; it contains the product's attributes, benefits or whatever is relevant with that product's unique selling proposition. Advertisers have applied it in a wide variety of artistic techniques. The style of surrealism on advertising may have changed or it simply continues in its old form with the same format as the original great artists of the past. Modern surrealism has meaning hiding behind advertising images depending on how the visual image is interpreted.

METHOD AND PROCEDURE

This research applied the purposive sampling investigation method. Selections were made from different types of ads. The samples were 10 modern advertising campaigns with each campaign containing two, three or six pieces in full-color prints. The ads featured were chosen based on the characteristics of the technique of surrealism used. The ads met the surrealist conditions of being dreamlike and/or reality-unnerving, containing illogical scenes with photographic precision, creating strange creatures from everyday objects or developing painting techniques that allow the unconscious to express itself (http://en.wikipedia.org/wiki/Surrealism). The meaning generated was analysed by metaphorical interpretation.

The words and images were in the advertising context. This research specifically analysed surrealist images. Ad Image samples are both well-known

and not well-known, single and series print ads (magazines). They advertise consumer products such as mineral water (Perrier), liquour (Absolut Vodka), kitchen appliances (Whirlpool), fashion/clothes (Harvey Nichols, Marithe and Francois Girbaud), a bookstore (Filigranes), an eco-automobile (Volkswagen, Polo the Blue Motion campaign), investment (AE Investimentos) and non-profit organisations (World Wide Fund of nature, formerly named the World Wildlife Fund, WWF). The research followed a systematic analysis, one by one, according to concepts of marketing communication theory, advertising creative conceptualisation and semiotics theory.

RESULTS

The findings from the samples of the 10 selected advertising campaigns can be explained as follows:

Volkswagen Polo, The Blue Motion Campaign – Automobile

Fig.1: Dali

Fig.2: Magritte

Fig.3: Bosch

Fig.1-3: Reprinted from CreativeCriminals, by S. Janssen (2009). Retrieved from http://creativecriminals.com/volkswagen/polo-bluemotion-dal-bosh-magritte

Product type	Brand	Image Title	Technique
Automobile	Volkswagen	1. Dali	Dali inspired
		2. Magritte	Magritte inspired
		3. Bosch	Bosch inspired

Copy. Absurdly low consumption / The Polo Blue Motion

Image. The ads are inspired by the great surrealist painters, Dali ('The Persistence of Memory'), Magritte and Bosch, whose style is fully represented in the ads. The ads resemble a dream and contain absurdist imagery in impossible circumstances as well as incongruous juxtapositions. The idea communicated in the ads is environmental protection and efficient driving – the automobile is the greenest and lowest polluting vehicle available.

AE Investimentos – Investment

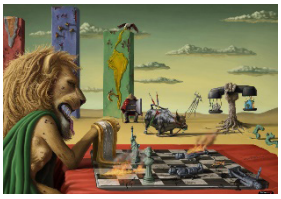

Fig.4: Lion. Reprinted from Ads of the World, by L. Burnett (2008). Retrieved from http://adsoftheworld.com/media/print/ae_investimentos_surreal_1

Fig.5: Strange. Reprinted from Ads of the World, by L. Burnett (2008). Retrieved from http://adsoftheworld.com/media/print/ae_investimentos_surreal_2

Product type	Brand	Image Title	Technique
Investment	AE Investimentos	2.1 Lion 2.2 Strange	Dali's Inspired

Copy. Don't Be Lost in the Weird World of Investments / Visit AEinvestimentos.com

Image. These ads take their inspiration from Dali and apply his style and presence to the investment business world. The elements in the background are human, animals and others objects from Dali's 'Temptation' and 'Bee Flight'. They present the implication of an economic information digest and a political message, which is a weird-world economic phenomenon. The United States of America, United Kingdom, India, China and the Middle-East are following the blind leader. It illustrates and emphasises the leader who is dragging them to a world of catastrophic economy. As its main idea, the ad states, "Don't be lost in the weird world of investments."

Whirlpool Kitchen Aid – Electricity Appliance

Fig.6: Surrealism. Reprinted from Ads of the World, by DDB (2011). Retrieved from http://adsoftheworld.com/media/print/whirlpool_kitchenaid_surrealis

Product type	Brand	Image Title	Technique
Electronic Appliance	Whirlpool Kitchen Aid	Surrealism	Dali's painting

Copy. For 92 years, cooking has been art as the Surrealist turns dreams into art. And before that KitchenAid was doing the same in the Kitchen. Turning Recipes into masterpieces. Find out about our products and other art movements at: Facebook.com/ KitchenAid Brazil. KitchenAid for those to whom cooking is art.

Image: The ad presents a premium major countertop kitchen appliance. The product-orientated approach presents a scene from a fantastic dream world. The artful appeal and predominant emotion is the sense of the world's passion for cooking. Whirlpool opens a delicious world of possibilities when inspiration is at one's fingertips and there is so much more to make. The word "Surrealist" implies the ability to "turn dreams into art." The visualisation symbolises the product image as high art for life, which is turning recipes into masterpieces of art.

Perrier – Mineral Water

Fig.7: Melting.

Fig.8: Melting.

Fig.9: Melting.

Fig.7-9: Melting. Reprinted from 'Inspiration Room', by D. Macleod (2009). Retrieved from http://theinspirationroom.com/daily/2009/perrier-bottled-water-in-melting-heat/

Product type	Brand	Image Title	Technique
Mineral Water	Perrier	Melting	Dali's 'The Persistence of Memory'

Copy. None

Image. Perrier, the world's best-loved bottled water brand became an intrinsic part of an active, healthy American lifestyle in the late 1970s. Social drinkers started ordering Perrier instead of cocktails or soft drinks. The brand's popularity grew as a refreshing, all-natural, calorie-free alternative beverage.

The ad features a very hot summer day on a tennis court where a big ice bucket, which is full of ice, is melting. There are bottles of Perrier mineral water inside. The objects on the tennis court are going to melt too, but not the bottles of Perrier. A thirsty tennis player is struggling to reach a bottle. In the other two ads the women are sweating. They are taking Perrier while the other objects are melting. 'Melting' was inspired by Dali's 'The Persistence of Memory'. This exaggerated image can renew brand awareness and arouse in the consumer a physical, basic need. It is a simple and clear visual message that reflects meaning evocatively.

Absolut Vodka

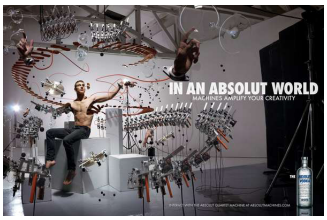

Fig.10: Absolut machine.

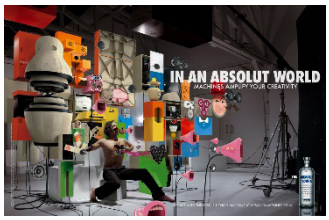

Fig.11: Absolut machine.

Fig.10-11: Absolut machine. Reprinted from 'Inspiration Room', by D. Macleod (2009). Retrieved from http://theinspirationroom.com/daily/2008/absolut-machines-in-retrospect/

Product type	Brand	Image Title	Technique
Liquor-Vodka	The Absolut Vodka	Absolut Machines	Futuristic Surreal

Copy. In an Absolut World Machines Amplify Your Creativity

Image. Absolut Vodka is renowned worldwide as one of the leading premium vodkas. Everything about Absolut Vodka is iconic in nature, such as the bottle, the ads and the taste. Absolut single ads make up the majority of its ads. This company has been exploring the spheres of art, fashion and music throughout its history. The brand explores the intersection between art and cutting-edge technology. It puts forth the idea that the night is a playground and the key to a truly amazing night is to embrace the possibility of creativity and vitality through a series of unique artistic experiences around the world.

'Absolut Machines' actually refers to the 'Absolut Choir' made up of 22 robots of various sizes. The participants come up with a word, and the machines come up with a

song based solely on the word (http://absolutad.com/absolut_gallery/singles). The idea is to explore what it would be like if machines could be creative like people. The image shows a young man sitting in a weird flying machine amid other music-making machine parts and his hands extended and apart from him, exploring the music-making ability of the machine parts. Absolut futuristic surrealism is one of the campaigns that continues its transformation of advertising by presenting a series of global experiences, where artists inspire their audience through the power of creativity.

Filigranes Bookstore

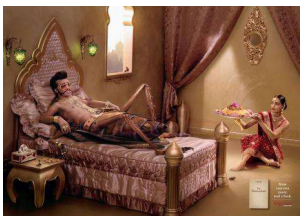

Fig.12: Bollywood. Reprinted from Ads of the World (2008). Retrieved from http://adsoftheworld.com/media/print/filigranes_bookstore_bollywood

Fig.13: Las Vegas. Reprinted from Ads of the World (2008). Retrieved from http://adsoftheworld.com/media/print/filigranes_bookstore_las_vegas

Fig.14: Silent movie. Reprinted from Ads of the World (2008). Retrieved from http://adsoftheworld.com/media/print/filigranes_bookstore_silent_movie

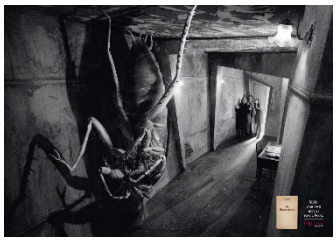

Fig.15: Manga. Reprinted from Ads of the World (2008). Retrieved from http://adsoftheworld.com/media/print/filigranes_bookstore_manga

Product type	Brand	Title	Technique
Bookstore	Filigranes	The Metamorphosis 1. Bollywood 2. Silent Movie 3. Las Vegas 4. Manga	Digital Photography retouching

Copy. The Metamorphosis / Make Your Own Movie: Read a book

Image. Filigranes bookstore in Brussels, Belgium presented 'The Metamorphosis', a series of print ads with images visualising a set of crazy and amazing worlds. The cockroach uses a pick-up line. A half-man half-cockroach that looks like a Maharajah reclines lazily on a bed, while an Indian maidservant offers him a platter full of delights. The eroticism and horror of a beautiful young woman and a giant cockroach in a bedroom alone together evokes the sensual in a macabre sense. In another image, a dark and deep tunnel hides a horrifying giant bat-roach (cockroach bat) hanging upside down from the ceiling while a third image reveals a fight of sorts in bed between a robot-roach and what looks like a man.

'The Metamorphosis' is a novel by Kafka in which a man gradually transforms into a cockroach. The surreal images used in these ads allude to Kafka's novel through weird juxtapositions: a cockroach and a human, an animal and a robot, a robot animal and a man. These weird images are an ad concept that encourages and emphasises reading. The idea is that readers can visualise the entire story just as if they were watching a film. The ad persuades its audiences to lower their degree of television exposure and make their "own movie" by reading a book, and for this, they can visit Filigranes bookstore.

Marithe and Francois Girbaud – Fashion


Fig.16


Fig.17


Fig.18


Fig.19


Fig.20

Fig.16-20: This is a crazy world. Reprinted from viacomit (2010). Retrieved from http://viacomit.net/2010/02/04/marithe-francois-girbaud-this-is-a-crazy-world/

Product type	Brand	Image Title	Technique
Fashion	Marithe and Francois Girbaud	This Is a Crazy World	Photography retouching

Copy. This Is a Crazy World

Image. Through these images, Marithe and Francois Girbaud, French fashion designers, launched a new photographic ad campaign for their Spring and Summer 2010 collection, showing off their denims, street clothing and shoes. The copy, captures the ad concept, provoking thought, while grabbing the attention of the viewer. The visual images convey the ad message-product value and standard. The campaign features a fashion showcase. The stiffened models are dressed in jeans and casual wear. They are presented as upside-down characters in a scenario of the natural world turned on its head. The models become alien visitors from outer space, timeless dolmens in an exotic landscape or, more directly, a nod to figurative surrealism in the tradition of Magritte. The Summer and Spring 2010 campaign ads perfectly suited the objective of catching the viewer's attention from the page of a magazine. Even if only half-consciously perceived when skimming through the pages, the ads immediately present a jolt to the senses that the reader has to take immediate note of.

Lifebuoy Hand Soap

Fig.21: Kitten

Fig.22: Dog

Fig.21-22: Reprinted from lizzbenno, by L. Bennett (2012). Retrieved from http://lizzbenno.blogspot.com/2012/11/ad-that-uses-surrealist-technique.html

Product type	Brand	Image Title	Technique
Soap	Lifebuoy	You Eat What You Touch 1.Lifebuoy-kitten 2.Lifebuoy-dog	Photography retouching

Copy. You Eat What You Touch

Image. Surreal images are created by merging two things in these images: a kitten and a croissant, and a dog and a loaf of bread. The combination and transformation of one into the other is weird and surprising; the end products are a croissant-kitten and a loaf-dog. These images blend the meaning and image of one thing into another. The dominant key visuals arrest the attention of the target audience, amazing them. Metaphorically, the images convey a significant message: the easy spread of bacteria and germs from people's hands to the food they will be consuming. It creates an awareness for proper washing of hands before eating a meal. The ads neither reflect any essential or unique selling proposition. There are no product features or attributes to show brand significance. Therefore the target audience, without noticing the Lifebuoy logo on the right-hand side of the ad, will realise that this is simply an ad for a general hand-soap product. The ad aspect affects brand-reminding and is concerned with consumer general health and well-being.

Harvey Nichols – Fashion

Fig.23: Spike

Fig.24: Moth

Fig.25: Ice cube head

Fig.23-25: Reprinted from lizzbenno, by D. Macleod (2007). Retrieved from http://theinspirationroom.com/daily/2007/harvey-nichols-women-and-men-are-irresistable/

Product type	Brand	Image Title	Technique
Fashion	Harvey Nichols	1. Spike – Women's wear 2. Moth – Men's wear 3. Ice cube head – Beauty	Photography retouching

Copy. Harvey Nichols: Women's wear, Men's wear, Beauty

Image. This campaign was for Harvey Nichols' annual women's wear and men's wear sales. The three print ads present a set of fashion photography models of both men and women who have bizarre heads: balloons and a spike, a light bulb and moths, ice cubes and a gas burner. These are half-human half-animal-like alien beings, dressed in Harvey Nichols clothing. In one image, two balloon-headed men in suits are powerless against a woman whose head is a spike; with her spike, she can easily prick them to death. In another image, two moth-headed men are helplessly drawn to a woman who has a light bulb for a head, again suggesting the helplessness of the male against the elegant power of the female. In the last image, however, two women with ice cubes for heads are threatened by a man whose head is a gas burner. The ads suggest the irresistibility of sexual power play and how clothes are an essential prop in the enduring drama of life that revolves around people, relationships and power.

WWF: World Wildlife Fund

Fig.26: Fish man. Reprinted from Treehugger, by M. G. Richard (2011). Retrieved from http://www.treehugger.com/culture/wwfs-horrifying-and-frightening-ads.html

Product type	Brand	Image Title	Technique
Non Profit Organisation	WWF	Fish Man	Photography retouching

(WWF: World Wide Fund for Nature, a nature conservation organisation previously named World Wildlife Fund. It still uses its former name in some markets).

Copy. Stop Climate Change Before It Changes You

Image. A single dominant image of a man with a fish head is positioned in the middle of the page. It is striking and immediately captures the viewer's attention. Surrealism is created by the juxtaposition of a human body and an animal head to form a mutant fish-man. The message clearly communicates to the viewer the severity and distressing nature of climate change that is slowly becoming obvious every day. The mutant represents a peculiar environmental condition affecting human beings and the resulting human adaption to climate change that could follow. The exaggeration of the image conveys the message that it is urgent for people to become aware of the reality of climate change and to start thinking about the immediate need for environmental preservation. The campaign creates awareness of environmental protection for people. In addition, it convinces the target audience to be more concerned about the environment.

DISCUSSION AND CONCLUSION

In the execution of modern advertising, the art direction of surrealist images and illustrations is strongly influenced by Salvador Dali. He is the typical surrealist dabbling in weird ideas and amazing visualisation. Second is Magritte. Their influence has produced two types of surrealist advertising image: 1.) The world masterpieces: These follow the tradition of world-famous surreal oil paintings in style, idea, artistic composition, mood, tone and visual objects presented. The audience needs just one glimpse of the visual to realise that the prints ads are based on famous surreal paintings. The following samples demonstrate this idea: Volkswagen, the Polo Blue Motion, Whirlpool, AE Investimentos. 2.) Modernised images: These ads make use of digital photography, photographic retouching and/or photographic montage. They use juxtapositions: two ideas/objects are combined and blended together to suggest transformation of one into the other. These surreal subjects are set in a peculiar environment. The digital photos render sharp picture quality and suggest a contemporary look and feel, as in the following samples; Perrier, Absolut Vodka, Filigranes, Magithe and Froncois Girbaud, Harvey Nichols, Lifebuoy and WWF.

Some surrealist advertising imitates the techniques and form of 19th century surreal paintings. They conjure weird, dreamy, transformative and subconsciously scenes that highly impact the viewer. While they are as artistic, their objectives are absolutely different from those of the original surrealists. Surrealist painting was created to fulfil the subjective, artistic, emotional and subconscious mind. Surrealism in advertising was created for the objectives of marketing communication; these focus on a rational marketing concept for selling products.

Surrealist ads make use of icons, symbolism and metaphor to create key ad concepts, messages or product unique selling propositions. For example, the new Volkswagen Polo, The Blue Motion 'Think Blue' campaign keeps the form of a specific style of impossible circumstances. 'The Persistence of Memory' changes the advertising theme to "Absurdly low consumption." In one image, dreamy scenery features a situation of over-consumption, in which the 'Man with a Chest of Drawers' symbolises the deep psychological secrets that every person carries inside, and refers to the gas station owner affected by a reduction in fuel consumption. A belted melting clock symbolises that time is running out. The metaphorical interpretation urges the creation of environmentally friendly products and solutions and encourages more eco-conscious behaviour and contribution to a sustainable future. The end message is the need for everyone to be more responsible on the road and more environmentally conscious, not just when driving, but everywhere, every day.

Surrealism creates an advertisement's uniqueness and difference. It captures consumer attention in surprising ways and

stimulates viewers to examine the ads for hidden meaning. Surrealist art contains a complexity of images and meaning. Interpretations must consider both the image and the text together. The text or verbal message can be unambiguous or monosemic but the images are ambiguous or polysemic (Barthes, 1977; Vestergaard & Schrøder, 1994). Vestergaard and Schrøder (1994) mentioned that as a means of communication, pictures are much more ambiguous than language and therefore, they often have to be anchored by verbal text (Vestergaard & Schrøder, 1994). Images communicate and can be analysed in ways similar to language (Vestergaard & Schrøder, 1994).

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The Creative Process of Developing Identity Through Native Textile Handicraft: The World Heritage Site of Luang Prabang

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ABSTRACT

Luang Prabang native textile is regarded as the city's principal cultural merchandise. In the past, aesthetic and refined weaving was intended as gifts to present to kings and aristocractes only. However, after Luang Prabang was declared a world heritage site, the city became a popular tourist attraction, and this raised the value of its cultural goods. Textile became an item precious to travellers, the most famous being the royal fabric or *(Pa-Tor-Raj)* of Luang Prabang's Royal Residence. Therefore, the aim of this study is to investigate patterns, identity and creative processes of the native textile industry of Luang Prabang, a World Heritage city of the Lao People's Democratic Republic. The study uses the in-depth interview method to elicit information from well-known professional weavers and royal fabric weavers who have been producing textile since before the regime change. The results of the study revealed that the patterns of native textile could be classified into two main categories. The first was textile used in daily life, such as sarong, *Pa-Biang* (shawl used by women that wraps over one shoulder around the chest and back) and shawl (used by women to cover their shoulders), while the second category was textile used in religious ceremonies, such as *tung* (fabric hanging down a long piece of wood) and curtain material. The prominent motif used in weaving is a pattern inspired from ritual and traditional belief representing the great *naga* or serpent. Manufacturing procedure was developed from the surroundings and religious faith; these may be divided into three categories: 1) patterns derived from animals, such as the *naga*, mermaids, birds, lions and the *Morm*, mythological creature 2) patterns derived from flora, such as trees, vines, flowers and fruit 3) patterns based on people and folklore, such as virtue codes of morality and tradition.

Keywords: Creative, identities, native textile, Luang Prabang

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INTRODUCTION

Luang Prabang welcomes visitors as an important tourist attraction of the region, providing advanced Buddhism sources from numerous monasteries, architectural identity inherited from France and art, culture and a lifestyle that cannot be changed by globalisation. These have fascinated people from around the world, who now travel to Luang Prabang city (Inthavong, 2003, p. 101) to the city to see and observe these attractions for themselves. The world heritage committee of the United Nations has declared that Luang Prabang is a World Heritage city (Thai-Laos Friendship Association, 2011, p. 58), stating that:

> *Luang Prabang is a model of the cultural permanence which has a time-honoured custom, and it has been existing. Furthermore, it illustrates an achievement of the combination between tradition, architecture, community structure and 19th and 20th-century European influence. The characteristics of Luang Prabang's landscape show a great conservation, and also the outline of the significant procedures of perfect integrations between two civilisations.*

Presently, Luang Prabang is rated second among scenery towns of The Lao People's Democratic Republic and receives a huge number of visitors. Around 1,640,360 people visited the city in 2011, and providing it with an income of 296 million dollars. In 2013, the city was voted a first-class remarkable tourist attraction by Wanderlust travel magazine.

Travellers visiting Luang Prabang, especially from the West, prefer its hand-made products. Luang Prabang's conservative cultural identity, which expresses its customs, beliefs and arts are indeed present in its handicraft, which is largely inspired by Lao folk wisdom and way of life. Much of its manufacturing tradition and handicraft is fed by ancient Lao stories, subsistence beliefs and long-lasting religions, especially Luang Prabang's native textile industry. Its elegant style and invaluable pattern refers to the origins of its cultural contexts. To the people of Luang Prabang, weaving is an important task for girls as it is part of clothing manufacture both for daily use and for worship, which is an important element of Lao life. According to Duangduen Boonyawong's article entitled 'The Laos' Woven Fabric: The Art of Life from Cradle to Grave' (Pragwatthanakun, 1993), in weaving culture, an exquisite pattern indicates the tradition and identity of the Lao people. Instruction in weaving skills is passed down from mother to daughter and has become a national legacy that should be preserved. Weaving also relates to the royal court because local weavers had to present their products to the king; meeting the royal demand for woven textile led to great care and effort poured into textile craftsmanship until the revolution in 1975. After the city was declared a World Heritage site in 1995, the weavers turned

their skill to the pressures of commercial demand, producing woven textile for tourist consumption.

The culture of weaving does not only reflect people's need for subsistence, but also the folk wisdom, beliefs, graciousness, values and creativity of the unknown weaver. Moreover, the woven fabric of Luang Prabang and The Lao People's Democratic Republic has an individual history and style that can be learnt from its pattern, especially in the case of *sarong* production that shows not only the development of the handicraft, but also the skill and mind of the weaver. Weaving also captures social status, worship rituals and historical events (Nanthavongdouangsy, 2006). Today, native textile is regarded as the most popular cultural souvenir of travellers because of its beauty and culture-derived patterns, which convey the character and lifestyle of the people of Luang Prabang.

This study sought to investigate the patterns, identity, creation process and development of native textile in the World Heritage city of Luang Prabang in The Lao People's Democratic Republic. It is believed that the individual patterns of Luang Prabang's textile can highlight the worth of the products as an item valued by visitors to the city as well as a source of local income for the city and the country as a whole.

RESEARCH METHODOLOGY

This study was carried out to investigate the patterns, identity, creation process and development of native textile in Luang Prabang. The study took the approach of qualitative research.

Population and Sampling

This study was a qualitative research work using the techniques of survey, observation, in-depth interview and key informant interview. The participants were weaving specialists who presented their products to the royal court, philosophers and local people from the native textile manufacturing areas in Luang Prabang. The purposive sampling was well-known native textile craftsmen from Luang Prabang.

Research Instrument

This study took the form of qualitative research and used the structured interview and participant observation to collect information on native textile handicraft production in Luang Prabang with a focus on local fabric patterns, their identity and the creation process framework.

Data Collection and Data Analysis

The researchers have cooperated with the other researchers from Souphanouvong University to coordinate the interviews. After that, the researchers conducted observations in order to obtain information for the descriptive analysis of native fabric patterns, identity and creation process.

RESULTS

Patterns Used in native textile of Luang Prabang

The results revealed that previously, Luang Prabang native textile production was undertaken to supply woven textile for two uses i.e. for daily use and for worship. The purpose today is commercial in accordance with modern economic pressures. After Luang Prabang was declared a World Heritage site in 1995, the number of travellers flocking into the city desiring to see Lan Chang arts and culture began increasing annually. Similarly, demand for local goods soared, especially demand for native textile, which quickly became an important cultural product and the best-seller souvenir of Luang Prabang. Native textile was no longer woven for daily use or worship only as people used the *sarong* as their everyday wear and others for traditional purposes; however, native textile was still given as a gift during weddings. A detailed look at the use of Luang Prabang fabric is given below.

Daily use. Daily use items that use woven fabric include the *sarong*, shawls, bedspreads, cleaning cloth and mosquito nets. In the past Luang Prabang folk only wove fabric for use by family, and so it was an entirely feminine task undertaken by women and girls. The skill and know-how was passed from mother to daughter, and it was necessary for young girls to learn and practise weaving. Girls who were orally taught would start weaving by age six or seven, producing work and patterns that grew in intricacy as they grew older and became more knowledgeable and skillful in weaving. A long time ago, women were evaluated based on their skill in weaving; it was one of the more significant skills required from a girl ready to enter married life as she would be expected to produce clothes and fabric for her family's use.

Use in worship. The use of woven fabric in worship was a basis of Buddhist life in Luang Prabang. On Buddhist holy days, the people of Luang Prabang would rest from work and go to the temples to pray and listen to sermons. Woven fabric was used by Buddist monks as seen in their vestments, yellow robes and bath robes while for other customs, it was used to produce *tung* (flag) cloth, fabric for covering scriptures, curtains and robes for monks. The old practice was for men to enter the monastery at a certain age to perform good deeds to honour their parents, this being the highest merit a man could attain; women would then be needed to weave fabric for use by the monks and others involved in religious ceremonies related to this practice.

Luang Prabang Native Textile Identity

The identity of Luang Prabang's native textile weaving is inspired from the life around the community, and patterns are based on animal, plant and human life. The basic patterns are the square, triangle, ring, circle, hook, orange jessamine and key; each of these were prominent symbols that might be woven as the main motif of the entire fabric. Meticulous forms are woven at the bottom of *sarongs* without

the *cherng* (the border running along the lower part of the sarong using a pattern different from the rest of the fabric). The *jok* is a pattern that has two characteristics i.e. a geometric pattern and a serration form (*eia* in Lao). The colours of the special weft are normally yellow as the main background and white, black, red and orange as secondary themes. These characteristics are either created by the weavers or taken from their surroundings e.g. trees, flowers, canals, birds and other animals. The weavers may also take their inspiration from mythological creatures from the ancient tales of the Lao people that make up their oral tradition, passed down from generation to generation. Some patterns also come from stone inscriptions. The creatures commonly found as motifs are the *naga* (fabulous serpent), *shi-ho* (half lion half elephant) or *sriharaj* (the great lion king lion) and *hongsa* (fabulous swan). The *naga* is the most popular motif of the Lao Nhua (northern Lao) weavers. Some creatures believed to have existed at the time of the origins of the Lao people along the Mae Khong River and the Sa-kha River are also featured on the woven fabric. The many designs, such as the mythological creatures, complex geometry shapes and natural life, required different weaving techniques. According to weaving specialists, the ancient weaving techniques and the dying of cloth from natural colours are high-level skills. The complicated patterns are matched with compatible colours without damaging the fabric texture. The weaving patterns that are inherited from previous generations are regarded as a valuable preservation of culture and tradition whose development can be continued to following generations. The patterns commonly used by fabric weavers can be divided into three categories: animals and creatures, nature and people and folk tales.

Animals and creatures. These patterns are inspired by animals and creatures that are found in everyday life, mythology, folk tales and religious beliefs. There are more than 30 popular patterns, some of which are inspired by beliefs related to the founding of Luang Prabang and to the great Mae Khong River that waters the land. These include the *naga* (Fig.1), which has many names depending on the period of history. In ancient Luang Prabang, it was called *Ngueang* and *Luang* which mean 'giant serpent' or 'spiritual snake'. In the Buddhist Era, the creature obtained the name *naga*. Another pattern is the *shi-ho* or *sriharaj*, which is mostly woven as the border of *sarongs*. The *shi-ho* (Fig.2) originates from the folk tale entitled '*Sang-Sinchai*', which is the story of a grateful man who could transform himself into many forms using magic; his powerful voice could destroy his enemies easily. This story has been used to teach children. *Shi-ho* is a half lion-half elephant; his body is that of a lion's while he also has two tusks like those of an elephant. The *shi-ho* pattern is commonly found only on shawls, cloth for covering the shoulders and cloth for covering coffins. As the creature is highly regarded, the pattern would never

be found at the bottom of a *sarong*. The *chang* or elephant pattern (Fig.3) is a basic pattern on cloth to cover the chest and cleaning cloth. Other popular patterns are the *nok* or bird pattern (Fig.4), the *hongsa* or swan, the *Hadsadee Ling* and the *Morm* (mythological creatures).

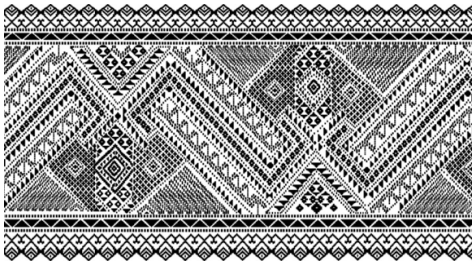

Fig.1: The naga, Tormtaw, or twin-headed naga normally found as the border of Lao sarongs, cloth used to cover the chest and silk fabric for daily use.

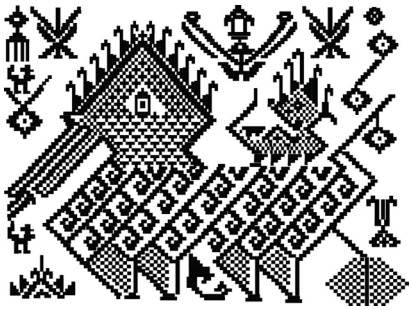

Fig.2: The popular shi-ho.

Fig.3: The popular chang or elephant motif.

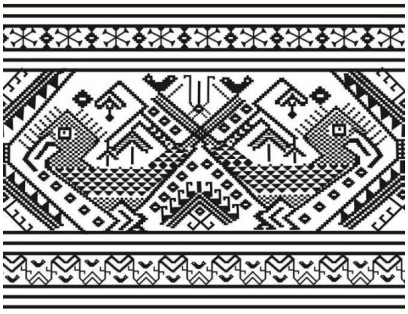

Fig.4: The nok or bird design.

Nature. Plants, trees, vines, flowers, fruits and other forms of natural life are also a prominent feature of Lao woven fabric. Luang Prabang is regarded as an agricultural society; therefore, plants feature greatly in its daily life, becoming obvious inspiration for its weaving patterns. The *bak tan* (Fig.5) takes its name from a local palm tree. Fabrics based on this pattern usually has a grain line (including warps and wefts). Only one pattern is normally used for the entire fabric. Another common pattern is the *dok dao* (Fig.6); its name is derived from the bright stars in the night sky. Laotians refer to visible stars as *dok* and *duang* (classifiers for flowers in Lao). The pattern is woven using normal thread or silk thread that has completely different colours to imitate a star's radius.

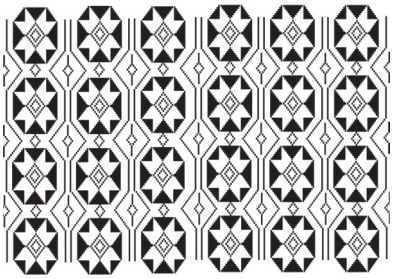

Fig.5: Khom-bak-tan, a floral pattern.

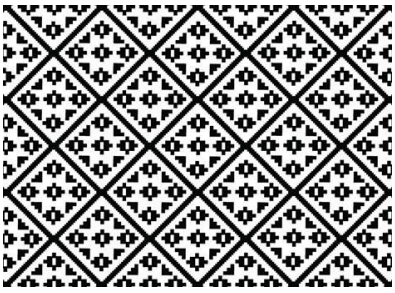

Fig.6: Dok dao, stars visible in the sky.

People and folk tales. Some patterns are based on characters from mythology and folk tales. For instance, the Chinese key pattern or *kha-jae* in Lao is woven as a regular pattern and takes the shape of ancient keys. The *kom* (lamp) pattern (Fig.8) uses a lot of intricate detail in one set. The lamp represents happiness, brightness, social harmony and a good identity. The man or frog pattern (Fig.9) is an antique pattern representing rain and abundance. It is mostly used on Laos silk fabric and in other forms of art. There are also other patterns such as the *dhammas* (monk's seat when giving a sermon) and *prasard* (castle).

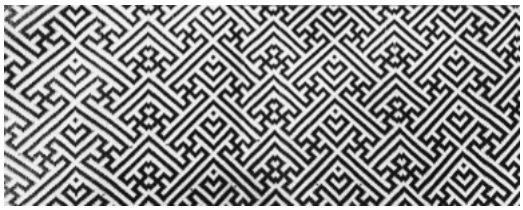

Fig.7: Kha-jae pattern.

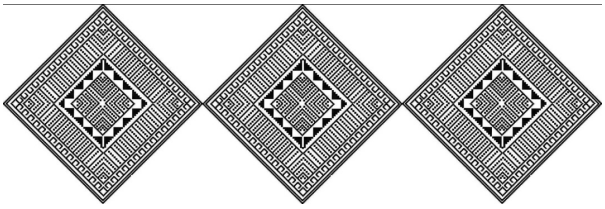

Fig.8: Khom pattern.

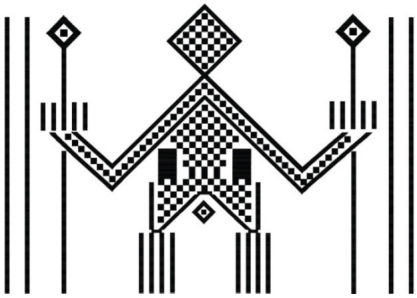

Fig.9: Khon (man) or kob (frog).

The Creation and Development Process of Luang Prabang Native Textile

Weavers receive their knowledge from their ancestors and endeavour to hone their skills in weaving. Most of the patterns on hand-made woven fabric are inherited from former generations and are the result of generational craftsmanship and folk wisdom. The patterns conveying old ways of life are blended in life at present in Luang Prabang. They represent the intellectual property of the community, and can be improved on for present and future needs. Woven fabric in the past used silk thread to create subtle colours. The complexity of the pattern depends on the weavers' experience, remembrances or creative thinking. The weavers may adapt or apply any patterns, colours, basic element of linking the fabric patterns or weaving punctiliousness in order to meet customers' requirements. Therefore, each period may produce a different fabric pattern. Luang Prabang weavers also apply patterns from beliefs, such as the *naga*; the *naga* was a creature that could determine abundance.

Another belief in seen in the nam-lai pattern (running water), which suggests a bond between the people of Luang Prabang and those living by the Mae Khong River and Khan River. These are what make the patterns fascinating. Today, there is support from the government and private sector to encourage the further development of the textile industry. Greater commercial demand results in greater textile product development and wider recognition for the products, the weavers and the nation. The progress of hand-made native textile is encouraging, especially during peak seasons. It is indeed a positive direction that Luang Prabang's native woven textile industry is growing in spite of mechanical textile production driven by heavy industry.

CONCLUSION AND RECOMMENDATIONS

There were two reasons for producing Luang Prabang native textile in the past i.e. for daily use and for worship. Daily use products included garments for daily wear, the *sarong*, cloth for covering the chest and the shoulders, bedspreads and mosquito nets, while worship use fabric was used for covering scriptures, as *tung* (flag) fabric, for curtains and to make the suits of Buddhist monks including their robe, *sarong* and outer robe. Moreover, these purposes stemmed from the responsibility of men and women in the Buddhist society of Lao PDR. As time passed, the purpose of producing woven fabric also changed, and today, woven fabric is mainly produced to satisfy commercial demand from Lao PDR's growing tourism industry. Two of most popular souvenirs that tourists take home with them from Lao PDR are the *sarong* and cloth used to cover the chest.

The strong identity of Luang Prabang native textile derives from its ancient cultural practices and beliefs, religion and mythology and folk tales. This identity takes three main expressions that are seen in the woven fabric: animal, natural and human life. Patterns based on animals are inspired by creatures from real life, mythology, folk tales and religious and spiritual beliefs. Nature patterns make use of trees, vines, flowers and fruit. Finally, patterns based on people and their lives come from mythology and folk tales and feature strong, individual depictions of the *naga*, *shi-ho*, *morm*, elephant, *kha-jae*, *dok dao*, *khon* and *kob*.

It is clear that most of the commonly occurring patterns are remembered or inspired from ancestors. However, the new generation of weavers are attempting to adapt or recast these patterns to suit present-day customer demand.

Based on the results of this study, the following recommendations are made for the further development of Lao PDR's growing textile industry. Firstly, a database containing information on the history of Luang Prabang's native textile weaving culture should be established to provide travellers to the city with understanding of the culture of Luang Prabang's native textile craftsmanship.

Secondly, to nurture and sustain this ancient skill and to prevent it from disappearing altogether due to the pressures of commercialisation, the original individual forms and fabric patterns should be collected and documented. They can be displayed in a museum or show room for the viewing pleasure of anyone interested in Luang Prabang native textile handicraft, which is a valid aspect of the ancient city's identity.

Thirdly, the government should establish routes for the systematic teaching and training of new generations of weavers so that this ancient skill and knowledge, which represent a core feature of Lao identity, are not lost, and can continue to be passed down from generation to generation. As new generations seem to be showing less and less interest in this ancient skill, perhaps it can be introduced in schools where teachers skilled in the techniques and who are steeped in the knowledge of this traditional cultural activity can teach young generations of Laotians this practical aspect of their cultural identity. Such a move will ensure that the skill of producing woven textile as an essential aspect of old Luang Prabang life is preserved for all time.

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A Study on the Integration of Learning Outcomes, Learning Activities and Assessments in Teacher Education

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ABSTRACT

This research aimed to study the process of course redesign for a five-year teacher education programme, and to develop the learning management ability of the pre-service teachers. The target groups were 82 third-year pre-service-teacher students from the Faculty of Education by purposive selection. The research instruments included a student reflection form, a student learning management ability checklist, a school mentor reflection form, a peer reflection form and a teacher's stages of concern questionnaire. The research results revealed the process of course re-design on the teaching profession, learning management ability of the pre-service teachers, content, learning activities inside and outside the classroom and various assessments, which were built from the learning outcomes and the teaching professional standard for teachers. After implementing the course, the students identified that they became better at learning management ability because they had had the chance to teach in an authentic situation and had received recommendations and guidance from the lecturer and school mentors. Moreover, reflection from students with hearing impairment and peer assessment helped them understand and know what occurred throughout their learning activities. Teaching practice in a school for the deaf revealed that the satisfaction of school mentors and students with hearing impairment was positive.

Keywords: Integration, learning outcomes, learning activities, classroom assessment, teacher education

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INTRODUCTION

Since 2006, teacher education courses in Thailand have been extended from four-year bachelor degree courses to five-year courses. Recently, the teacher education system in Thailand has been under

reform based on the Thai Qualifications Framework for Higher Education (TQF: HEd), which was launched in 2008. According to the National Education Act 2542 (B. E.) (1999) and Amendments (Second National Education Act B. E. 2545 (2002)), TQF is a mechanism for higher education quality assurance and is intended to develop the quality of students in the higher education system. The implementation of the TQF poses substantial challenges to teaching and learning. These include endemic difficulties in integrating theory and practice and the shifts in focus of activity and effort from documentation to quality of teaching and learning itself. Other challenges relate to recent and significant changes in Thai higher education, which has had considerable impact on the design of teaching strategies, learning activities and assessment as supported by optimal teaching standards. Learning outcomes are statements of the attributes and capabilities that a student should have achieved on successful completion of the learning session or topics. They provide a reference point for assessing students' progress and designing assessment strategies and methods. Learning outcomes are helpful benchmarks for the standards educators will apply when measuring students' achievement using various assessment instruments and processes (Pimpa & Moore, 2012).

Redesigning the course in teacher education followed a framework prescribed by the Office of Higher Education Commission (2006), which stated that there were significant differences in the way learning occurs in the different domains. For example, students memorise information in a different way from how they form their attitudes, and they learn to apply cognitive skills in problem-solving in yet a different way. Very different processes are involved in learning to apply ethical and moral principles in everyday behaviour and in improving interpersonal effectiveness and capacity for leadership. Psychomotor skills are developed through repeated practice with feedback on the effectiveness of performance. This means that if learning outcomes are to be achieved in the different domains of learning, different teaching strategies that are appropriate for those different types of learning must be used. The term "conditions of learning" is used to describe what are generally recognised as the most important requirements for effective teaching in each of the domains.

Success in implementing TQF for higher education must overcome the problem of how to apply teaching standards and strategies for teacher education to meet learning outcomes outlined by the TQF for current needs such as information retrieval sills, learning management ability (teaching skills), teachers' concerns and students' contexts. In addition, there are problems related to teaching. Veenman (1984) identified eight areas of concern experienced most often by beginning teachers: (1) maintaining classroom discipline; (2) motivating students; (3) dealing with individual differences; (4) assessing students' work; (5) maintaining

relations with parents; (6) organising class work; (7) dealing with insufficient materials and supplies; (8) dealing with problems of individual students. Pholsarum (2003) studied instructional reform in higher education based on the Second National Education Act B. E. 2545 (2002) Section 22 and revealed that (1) in the student dimension, Bachelor-degree students lacked good human relationship skills, an endeavouring spirit, endurance and creativity. Furthermore, the undergraduate students studied also lacked skill and experience in inquiring and researching; (2) in the curriculum dimension, it was found that there was no integration of subjects to help students gain appropriate knowledge in their fields of study. Ordinary teaching always focusses on teaching a single subject in order to make students professionals of each subject area.

This study focussed on TQF and the standard of teachers' knowledge and teaching competency of the Office of Higher Education Commission (2011) and the Teacher's Council (2005) which relate to teachers in this new era of globalisation that requires knowledge application for the improvement of new methods of teaching practice and classroom management that are responsive to learners whose different levels of intelligence are to be matched with three-tier instruction. In this research, the researcher developed a teaching profession course called 'inclusive education' that initiated a course to integrate content knowledge, pedagogical knowledge and pedagogical content knowledge into a single subject. What is seen in a single subject (inclusive education: IE) is integration of investigation of special education knowledge, design of the lesson plan for students with education needs and practice of teaching in authentic classes in order to monitor the student teachers' learning management ability and teaching concerns. Two issues were addressed: (1) What is the process of course redesign for a five-year teacher education programme? (2) How do the learning management abilities of pre-service teachers rate after the redesigned course is implemented? The research results will be used as a prototype for the development of courses for a five-year teacher education programme in order to apply innovative ways of teaching that will help all students achieve their learning outcomes and new professional standards.

LITERATURE REVIEW

Three-Tier Instruction

There are significant differences in the way learning occurs in the different domains. For example students memorise information in a different way from how they learn to form attitudes, and they learn to apply cognitive skills in problem-solving in yet a different way. Very different processes are involved in learning to apply ethical and moral principles in everyday behaviour and in improving interpersonal effectiveness and capacity for leadership. Psychomotor skills are developed through repeated practice with feedback on the effectiveness of performance. This means that if learning

outcomes are to be achieved in the different domains of learning, different teaching strategies that are appropriate for each type of learning must be used (Office of Higher Education Commission, 2011). The term "three-tier instruction" or Recognition Pyramid is used to describe what are generally recognised as the most important requirements for effective teaching in each domain. Three-tier instruction is an option seen in the Response-to-Intervention (RTI) Model, which is used for helping children to learn effectively in regular settings as a result of the use of appropriate teaching methods in each tier (Copenhaver, 2006). The three-tier instruction used for course redesign in teacher education adapted from the RTI Model included three tiers: (1) Tier-1 to support participation and collaboration in team tasks to achieve learning outcomes; (2) Tier-2 to support integration of all group members for all to achieve learning outcomes; and (3) Tier-3 to support individual students to achieve learning outcomes.

Standard of Teachers' Knowledge -- The Office of Higher Education Commission: Level 2 Bachelor's Degree for Education Curriculum

Knowledge for the teaching profession consists of 11 pedagogical knowledge streams: (1) Principle and educational philosophy, teaching profession and teachership; (2) Developmental and educational psychology; (3) Curriculum design and development; (4) Learning design and management; (5) Information technology and communication for teachers; (6) Classroom management and learning environment; (7) Innovation construction; (8) Measurement and evaluation; (9) Special education; (10) Educational research; and (11) Educational administration and related laws.

It also consists of six pedagogical content knowledge streams consisting of (1) Teachers' psychology for learning management for each grade level and field of study; (2) Developing curriculum on specific subjects for learning management for each grade level and field of study; (3) Management of learning specific subjects for each grade level and field of study; (4) Classroom management for each grade level and field of study; (5) Information technology and educational communication for learning specific subjects of each grade level and field of study; and (6) Educational measurement and evaluation on learning specific subjects for each grade level and field of study (Office of Higher Education Commission, 2011).

Education Professional Standard

Teachers' knowledge consist of nine standards: teachership, educational philosophy, language and culture, psychology for the teacher, curriculum, learning management and environment for learning, research for developing students' learning, innovation and information technology in education, measurement and learning assessment (Teacher Council's, 2005). In 2013, an additional stream was included i.e. moral, ethics and code of conduct (Teacher's Council, 2013).

METHODOLOGY

Target Group

The target group of this study included a total of 82 third-year pre-service-teacher students from two departments in the Faculty of Education at Udon Thani Rajabhat University, Thailand. The subjects were 44 Thai language majors and 38 Social Study majors selected by cluster random sampling.

Instruments

The research instruments consisted of (1) Lesson plans consisting of one orientation plan and four cycles of lesson plans using three-tier instruction, (2) A student reflection form to use before and after the course, (3) A student learning management ability checklist, (4) A school mentor reflection form, (5) A peer reflection form, and (6) A teacher's concerns questionnaire.

The students' learning management ability checklist adapted from Gilmore (2010) and the teacher's concerns questionnaire based on George (1978) were translated into Thai and served as the data collecting instruments. The quality of these instruments were drawn from content validity checks by three specialists, while content validity was determined by obtaining the item-objective congruence (IOC) value for each item of each instrument. These research instruments were used with non-sampled third-year students to discover inherent problems in order to solve them before data collection.

Procedure

The research design was classroom action research. Research was separated into three phases: (1) Phase 1 course design (May to September 2013); (2) Phase 2 implementation (November 2013 to February 2014); and (3) Phase 3 evaluation (March 2014). The data analysis consisted of analysing quantitative data by percentage, mean, standard deviations, a t-test for dependent samples, a t-test for independent samples using qualitative data and summarised by content analysis using a descriptive conclusion.

FINDINGS AND DISCUSSION

The research findings of this study were based on data gathered from two groups of students who provided information about learning management ability and teaching concerns from practice teaching. The results revealed the process of course redesign and the learning management abilities of the pre-service teachers.

The Process of Course Redesign

The process of course redesign can be illustrated for each phrase as follows:

Phase 1: Course design: The process of developing the course. From documentary studies such Gagne′s principles of instructional design, it can be concluded that there are three essential components of instruction: 1) objectives or goals; 2) methods, materials, media and learning experience or exercises; and evaluation

of success of the learners (Gagne' & Briggs, 1974). Therefore, the steps in re-designing the course consisted of two sets of actions:

Step 1. Identifying the students' learning management ability and concerns about teaching by doing a documentary study related to the 11 pedagogical knowledge streams, the six pedagogical content knowledge streams of the Thai Qualifications Framework for Higher Education (TQF:HEd) and the nine content knowledge and two teaching competency requirements of the Office of the Teachers Council of Thailand (2005).

Step 2. Designing the teaching profession course (Inclusive Education), which integrated teaching practice as part of the requirement of this course. A multi-level instruction programme was integrated to help third-year students' learning by dividing lessons into three tiers, namely: 1) Tier-1: Sufficient expression of content and tasks, active participation and collaboration in team tasks, friendliness, trust in the classroom and focus on the learning outcomes; 2) Tier-2: Working in groups; development of a team, encouraging communication, fair distribution of tasks, positive atmosphere; and 3) Tier-3: Achieving the learning outcomes; every person able to evaluate teaching performance for themselves and become better at learning management ability.

Phase 2: Implementation. The integrated learning activities for developing learning management ability consisted of four stages as follows:

Stage 1. Pre-teaching: Students were expected to find information about teaching for students with special needs from studying related documents. There were three class sessions when students were required to present the results of their study and two school visits for groups of four or five students to observe the teaching and learning in real classes.

Stage 2. Peer-teaching and micro-teaching: Students had two out-of-class teaching practice sessions and received teaching reflection from peers and a lecturer followed by one in-class micro-teaching session, after which students received teaching reflection from peers and their lecturer.

Stage 3. Practice in real classroom: At this stage, students work in groups of four or five members. Each group was sent for teaching practice at Udon Thani School for the Deaf in classes according to their respective majors.

Stage 4. Presenting and exhibiting knowledge learned from teaching practice: Students participated in

a seminar for both Thai language and Social Study majors in order to share knowledge they had learned from the prior stage with their peers (with the results from peer reflection), school mentors (with the results from the school mentors' reflection) and lecturers.

Form these activities, the steps of teaching comprised one orientation plan that implemented giving information about seven action research cycles and tier-3 instruction. The three lesson plans following the orientation for pre-teaching consisted of three main steps:

Step 1. Launching. This step consisted of engaging students' planning to do a task followed by lesson plan implementation; here the teacher and students made a commitment to teach at the micro level in real classes.

Step 2. Presentation. Observation was done as students presented their work, with their lecturer as facilitator in order to give the students three-tier. Instruction varied form low to high levels of guidance in the three tiers:

- Tier-1. Support for students who were in need of low guidance: The teacher and students made a plan for inquiring together in class activities.
- Tier-2. Support for students in need of moderate guidance: The teacher gave advice to small groups in outside-class activities while they were doing the task and as their needs required.
- Tier-3. Support for students in need of high guidance: The teacher gave advice to individual students through out-of-class activities after tasks were completed and as the individual's needs required.

Step 3. Conclusion. Students constructed the knowledge learnt from doing the tasks. They provided reflection through discussion on the performance of peers and their own performance in order to gather information on the strengths and weaknesses of the tasks for use in planning their next teaching session. The methods used were consistent with sound teaching strategies tailored for students from diverse backgrounds by providing guidance according to three tiers of competency and proficiency. In addition, assessment tasks offered important information to enhance students' learning experience as they were based on evidence and focussed on encouraging learning and measuring progress in relation to learning (Pimpa & Moore, 2012).

The ideas behind these activities are supported by NCATE (2000); field experience for student teachers is central to the development of their knowledge and skills. They are also relevant to Gagne and Briggs (1974) study results; their basic assumption about instructional design is that: (1) Instructional planning must be for the individual; (2) Instructional design has

phases that are both immediate and long range; (3) The work of instructional design is systematic and it affects individual human development; (4) Instructional design must be based upon knowledge of how people learn. Another conclusion for an effective teacher development programme based on extensive studies is that leadership development for teachers requires general activities that should comprise: 1) Development of activities using the school as a foundation to correct issues that obstruct the students' learning ability; 2) Development of activities encouraging cooperation from every educational member in order to build a strong social affiliation within the school, where goodwill and knowledge are available for all members. This concept indicates the level of expertise in curriculum creation and has to comply with the concept of the social platform as a learning centre; 3) Development of activities that should be transparent; 4) Development of rules that collect information by inquiring about planning, implementation and reflection of the action gained from analysing problems; and 5) Leadership development of activities that are continuous and well-ordered and that support the culture of knowledge exchange and lifelong learning (Harris, 2003; Henderson & Hawthorne, 1995).

Phase 3: Evaluation. In this study the researcher integrated the various methods and persons to assess achievement of the learning outcomes (learning management abilities). Furthermore, students had the chance to do self-assessment on learning management ability and teachers' concerns.

Learning Management Abilities of Pre-Service Teachers

In order to obtain extended understanding of pre-service teachers' learning management abilities, the researcher conducted a t-test for dependent samples on pre- and post-test scores for both learning management ability and teachers' concerns in addition to calculating an arithmetic mean and standard deviation.

TABLE 1
Mean and Standard Deviation of Learning Management Abilities and Teachers' Concerns of Pre-Service Teachers Majoring in Thai Language and Social Studies

Major	Learning Management Ability				Teachers' Concerns			
	Pre-test		Post-test		Pre-test		Post-test	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Thai	44.57	4.123	62.30	3.885	45.84	4.812	60.55	2.740
Social Study	41.74	2.202	63.03	2.573	46.11	4.039	59.58	3.374
Totals	43.26	3.641	62.63	3.343	45.96	4.446	60.10	3.070

Table 1 illustrates the pre-test and post-test mean scores and standard deviation for learning management ability and teachers' concerns. The learning management ability pre-test mean scores of the Thai language and Social Studies majors were 44.57 and 41.74, whereas the post-test means were 62.30 and 63.03, respectively. The teachers' concerns' pre-test mean for the Thai language and Social Studies majors were 45.84 and 46.11, whereas the post-test means were 59.58 and 60.55, respectively.

TABLE 2
Comparisons of Pre-Test and Post-Test for Learning Management Ability and Teachers' Concerns of Thai Language Majors

Test	$\bar{X}$	SD	t
Learning management ability			
pre	44.57	4.123	5.865**
post	62.30	3.885	
Teachers' concerns			
pre	45.84	4.812	24.244**
post	60.55	2.740	

** $p < .01$

The results showed a statistically significant difference between the pre-test and post-test scores for learning management ability (t = 25.865) and a statistically significant difference between the pre-test and post-test scores for teachers' concerns (t = 24.244), indicating that the post-test scores of both categories were significantly greater than the pre-test scores.

TABLE 3
Comparisons of Pre-Test and Post-Test for Learning Management Ability and Teachers' Concerns of Social Study Major Students

Test	$\bar{X}$	SD	t
Learning Management Ability			
Pre	41.74	2.202	34.946**
Post	63.03	2.573	
Teachers' Concerns			
Thai	46.11	4.039	27.502**
Social Study	59.58	3.374	

**$p < .01$

The results showed a statistically significant difference between the pre-test and post-test scores for learning management ability (t = 34.946) and a statistically significant difference between the pre-test and post-test scores for teachers' concerns (t = 27.502), indicating that the post-test scores of both categories were significantly greater than the pre-test scores.

The comparison results of the post-test mean scores of both groups of students are illustrated in Table 4.

TABLE 4
Comparison of Post-Test Mean Scores between Thai Language and Social Studies Majors on Learning Management Ability and Teachers' Concerns

	$\bar{X}$	SD	t
Learning Management Ability			
Thai language	62.30	3.885	1.016
Social Studies	63.03	2.573	
Teachers' Concerns			
Thai language	60.55	2.740	1.431
Social Studies	59.58	3.374	

*p <.05, **p <.01

The results showed that there were no statistically significant differences between the two groups in terms of learning management ability and teachers' concerns.

The results of this study showed that the scores for the post-test on learning management ability of both groups was significantly greater than for the pre-test. Similarly, a pre-test and post-test on teachers' concerns of both groups indicated that the mean of the post-test was significantly greater than the mean of the pre- test. This possibly resulted from the following: 1) The teaching method used in this research was developed using four cycles of action research and three-tier instruction that related to the student teachers' education needs. Moreover, the pre-service-teacher students had gained a better understanding from listening to peers' and lecturers' reflection on their work. The tasks assigned on learning activities could also have helped them to gain a clearer picture of the learning activities they planned i.e. teaching practice in an authentic situation, receiving recommendations and guidance from the lecturer and school mentors, receiving reflection on their work from students with hearing impairment and from peer assessments.

The results of teaching practice in a school for the deaf revealed that: 1) School mentors and students with hearing impairment were satisfied with the teaching; 2) Investigation into pedagogical

knowledge and how it was integrated with pedagogical content knowledge e.g. how to teach Social Studies or the Thai language to the students with hearing impairment, how to design activities to teach and how to assess students' understanding, helped the third year pre-service teachers develop their lesson plans for effective real classroom teaching; and 3) Re-practice teaching twice helped reduce pre-service-teacher students' anxiety, so that they could improve their teaching as they had the opportunity to assess their first teaching practice. These suppositions are supported by Lovat, Davies, & Plotnikoff (1995), who studied the integration of research skills development in teacher education. They found that firstly, it would seem that the students had entered teacher education lacking basic skills deemed necessary for eventual research competence, and secondly, the students' self-perception was developed to a reasonable extent by the time they were required to engage in independent study.

CONCLUSION

This research was a course redesign in teacher education for professional development to enhance student teachers' learning management ability. The findings showed that the process of course redesign was successful as it consisted of three phases: (1) Phase 1 – Course design; (2) Phase 2 – Implementation; and (3) Phase 3 – Evaluation. The teaching method integrated learning outcomes, learning activities and assessment with three-tier instruction that provided support to pre-service-teacher students by offering different levels of guidance from low to high depending on the needs of each student. Various activities, tasks, assessments and feedback were also provided in order to improve their pedagogical knowledge and pedagogical content knowledge. The designing of lesson plans consisted of four stages: (1) Stage 1: Pre-teaching included discussing and sharing teaching concepts; giving information on teaching; investigating additional information on teaching with three-tier instruction; (2) Stage 2: Micro teaching, which was teaching to peers in and outside class using three-tier instruction, teaching reflection and revision; (3) Stage 3: Practising in a real classroom, where students applied the three-tier plan; teaching reflection; and plan revision; and (4) Stage 4: Presenting and exhibiting the knowledge learnt. Each stage consisted of three main steps, namely, launching, presentation and conclusion. The findings on developing learning management ability and teachers' concerns revealed that the pre-service-teacher students' learning management ability and teachers' concerns were greater after implementation of the redesigned course.

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APPENDIX A

An example of instruments

A.1 Learning Management Ability Checklist

Directions: Please read each statement and ask yourself:

1 = Strongly agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly disagree

Learning Management Ability	5	4	3	2	1
1. Ability to plan for instruction					
2. Ability to arrange a positive environment					
3. Aability to engage students in learning					
4. Ability to develop relationship with students					
5. Ability to provide clear explanation and examples					
6. Ability to make connections with authentic situation					
7. Ability to facilitate students in responding					
8. Ability to encourage multi-sensory integration					
9. Ability to reinforce student learning					
10. Ability to identify students' difficulties					
11. Ability to evaluate students in order to select or change the intervention					
12. Ability to improve the appropriate instruction to meet students' needs					
13. Ability to defuse stress in atmosphere					
14. Ability to conclude the lesson					
15. Time management					

Please express your additional comments on what would help you teach better:

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PERTANIKA JOURNALS

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Our goal is to bring high quality research to the widest possible audience

INSTRUCTIONS TO AUTHORS

(Manuscript Preparation & Submission Guide)

Revised: June 2016

Please read the Pertanika guidelines and follow these instructions carefully. Manuscripts not adhering to the instructions will be returned for revision without review. The Chief Executive Editor reserves the right to return manuscripts that are not prepared in accordance with these guidelines.

MANUSCRIPT PREPARATION

Manuscript Types

Pertanika accepts submission of mainly **four** types of manuscripts for peer-review.

1. **Regular article**

Regular articles are full-length original empirical investigations, consisting of introduction, materials and methods, results and discussion, conclusions. Original work must provide references and an explanation on research findings that contain new and significant findings.

Size: Generally, these are expected to be between 6 and 12 journal pages (excluding the abstract, references, tables and/or figures), a maximum of 80 references, and an abstract of 100–200 words.

2. **Review article**

These report critical evaluation of materials about current research that has already been published by organizing, integrating, and evaluating previously published materials. It summarizes the status of knowledge and outline future directions of research within the journal scope. Review articles should aim to provide systemic overviews, evaluations and interpretations of research in a given field. Re-analyses as meta-analysis and systemic reviews are encouraged. The manuscript title must start with "Review Article:".

Size: These articles do not have an expected page limit or maximum number of references, should include appropriate figures and/or tables, and an abstract of 100–200 words. Ideally, a review article should be of 7 to 8 printed pages.

3. **Short communications**

They are timely, peer-reviewed and brief. These are suitable for the publication of significant technical advances and may be used to:

(a) report new developments, significant advances and novel aspects of experimental and theoretical methods and techniques which are relevant for scientific investigations within the journal scope;

(b) report/discuss on significant matters of policy and perspective related to the science of the journal, including 'personal' commentary;

(c) disseminate information and data on topical events of significant scientific and/or social interest within the scope of the journal.

The manuscript title must start with "*Brief Communication*:".

Size: These are usually between 2 and 4 journal pages and have a maximum of three figures and/or tables, from 8 to 20 references, and an abstract length not exceeding 100 words. Information must be in short but complete form and it is not intended to publish preliminary results or to be a reduced version of Regular or Rapid Papers.

4. **Others**

Brief reports, case studies, comments, concept papers, Letters to the Editor, and replies on previously published articles may be considered.

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Pertanika **emphasizes** on the linguistic accuracy of every manuscript published. Articles must be in **English** and they must be competently written and argued in clear and concise grammatical English. Contributors are strongly advised to have the manuscript checked by a colleague with ample experience in writing English manuscripts or a competent English language editor.

Author(s) **must provide a certificate** confirming that their manuscripts have been adequately edited. A proof from a recognised editing service should be submitted together with the cover letter at the time of submitting a manuscript to Pertanika**. All editing costs must be borne by the author(s)**. This step, taken by authors before submission, will greatly facilitate reviewing, and thus publication if the content is acceptable.

Linguistically hopeless manuscripts will be rejected straightaway (e.g., when the language is so poor that one cannot be sure of what the authors really mean). This process, taken by authors before submission, will greatly facilitate reviewing, and thus publication if the content is acceptable.

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The paper should be submitted in one column format with at least 4cm margins and 1.5 line spacing throughout. Authors are advised to use Times New Roman 12-point font and *MS Word* format.

1. Manuscript Structure

Manuscripts in general should be organised in the following order:

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This page should **only** contain the running title of your paper. The running title is an abbreviated title used as the running head on every page of the manuscript. The running title should not exceed 60 characters, counting letters and spaces.

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The names of the authors may be abbreviated following the international naming convention. e.g. Salleh, A.B.[1], Tan, S.G[2*]., and Sapuan, S.M[3].

Authors' addresses. Multiple authors with different addresses must indicate their respective addresses separately by superscript numbers:

George Swan[1] and Nayan Kanwal[2]
[1]Department of Biology, Faculty of Science, Duke University, Durham, North Carolina, USA.,
[2]Office of the Deputy Vice Chancellor (R&I), Universiti Putra Malaysia, Serdang, Malaysia.

A **list** of number of **black and white / colour figures and tables** should also be indicated on this page**.** Figures submitted in color will be printed in colour. See "*5. Figures & Photographs"* for details.

Page 3: *Abstract*

This page should **repeat** the **full title** of your paper with only the **Abstract** (the abstract should be less than 250 words for a Regular Paper and up to 100 words for a Short Communication), and **Keywords**.

Keywords: Not more than eight keywords in alphabetical order must be provided to describe the contents of the manuscript.

Page 4: *Introduction*
This page should begin with the **Introduction** of your article and followed by the rest of your paper.

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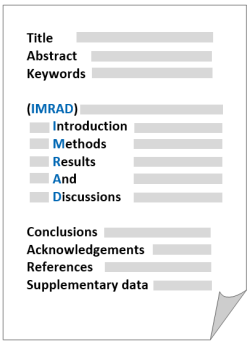

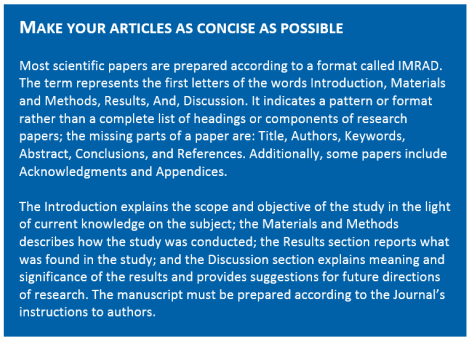

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Failure to comply with these specifications will require new figures and delay in publication.
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NOTE: When formatting your references, please follow the **APA reference style** (6th Edition). Ensure that the references are strictly in the journal's prescribed style, failing which your article will **not be accepted for peer-review**. You may refer to the *Publication Manual of the American Psychological Association* for further details (http://www.apastyle.org/).

7. *General Guidelines*

Abbreviations: Define alphabetically, other than abbreviations that can be used without definition. Words or phrases that are abbreviated in the introduction and following text should be written out in full the first time that they appear in the text, with each abbreviated form in parenthesis. Include the common name or scientific name, or both, of animal and plant materials.

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JTAS is devoted to the publication of original papers that serves as a forum for practical approaches to improving quality in issues pertaining to tropical agricultural research- or related fields of study. It is published four times a year in *February, May, August* and *November.*

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