กลุ่มที่ 1

บทความระดับนานาชาติ (International Papers)

กลุ่มย่อยที่ 1: Education

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A STUDY OF LEARNING ENGLISH GRAMMAR ACHIEVEMENT OF MATTHAYOMSUKSA 6 STUDENTS TAUGHT BY USING SKILL EXERCISES

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ABSTRACT

The objectives of this research are threefold: (1) to examine the efficiency of skill exercises, (2) to determine the leaning achievement, and (3) to compare learning achievement in English Grammar of Matthayomsuksa 6. The research sample was 39 Matthayomsuksa 6 students studying at SarasasWitead Klongloung School in the first semester of the academic year 2019. The research instruments included (1) English grammar skill exercises (2) lesson plan, and (3) learning achievement test and statistical analysis included analyze by using statistical values; namely, percentage, mean ($\overline{X}$) and standard deviation (SD) and using t-test (Dependent Sample)

The following research findings were revealed : (1) the efficiency of English grammar skill exercises was 80.40 / 85.90 which was higher than the standardized criteria of 80/80; (2) the learning achievement score was found which was good of 80.27% and (3) the learning achievement score of Matthayomsuksa 6 after the learning management using English grammar skill exercises was significantly higher than pre-test score at the level of .05

Keywords: Learning management using English grammar skill exercises, Achievement

1. Introduction

The basic education core curriculum B.E. 2551 (A.D.2008) specifies English subject to be the basic subject that everystudent is required to must learn starting from Primary 1 to Matthayomsuksa 6. The number of hours for studying English in different grade level is different. For grade 1 to grade 3 students, they are required to study no less than 40 hours; for grade 4 to grade 6 students, less than 80 hours; for grade 7 to grade 9 (Matthayomsuksa 1 to Matthayomsuksa 3) students, no less than 120 hours, and grade 10 to grade 12 (Matthayomsuksa 4 to Matthayomsuksa 6) students, no less than 240 hours (The Basic Education Core Curriculum, B.E.2551(A.D.2008)). Furthermore, students can learn English language on their own to improve their communication skills and their ability to exchange information in English with others as well as their understanding of the language of the English speaking people. English Grammar is a part of teaching English that can assist learners to understand language correctly and efficiently. In addition, English Grammar is important not only for improving speaking skills, but also for improving the reading and writing skills of the students. English Grammar can be the main focus of learning and teaching English language and it can be an important instrument to support the four communication skills that is listening, speaking, reading, and writing (Long & Richards, 1987).

According to the English Proficiency Index EPI, it was found that, although many countries do not use English as the major or main language in their countries, they are able to use English to communicate. For communication, people need to use language efficiently including understanding themselves and other people who they would like to communicate. Furthermore, they need to understand the social practices and - culture of the target language community (Ordinary National Educational Test, 2018). Therefore, practicing language skills is necessary Thai people to improve their English language and it is very important that they know English Grammar in order to improve their communication skills. Long and Richards explained that understanding English Grammar is very important to improve using English language accuracy. (Long & Richards, 1987). People who have the great grammar can learn English language in different skills and they can read and write better than people who don't know much about grammar. Knowing English grammar is the essential tool for improving the four communication skills of students in all levels (Parott, 2000). In conclusion, English grammar is associated with improving other skills and it can develop students to have a great communication.

Therefore, it is important to teach English grammar to students, and one way to do this is by using grammar exercises. The exercises can help the teacher to identify the problems and weaknesses the students are having and monitor their learning progress, thus enabling the teachers to provide appropriate measures and assistance to suit the need of each individual student. The grammar exercises also help students understand the lesson better. In addition, the students can use the exercises to review the lesson by themselves, thus giving them a better understanding of the lesson enabling them to become aware of their progress. Besides, English is also a subject that requires regular practice because practice will create expertise, precision, and cognitive development. Therefore, exercise is a learning tool that is useful for learning. (Anurak Rengrad, 2014).

One of the major problems faced by the students is that they are unable to parse a sentence structure properly. According to a study on the academic accomplishment of Matthayomsuksa 6 students of SarasasWitaed Klongluang School, in the 2nd semester, of the academic year 2018, it was found that the learning achievement was not satisfaction. In addition, most students could not understand type of sentences and they feel confused when they need to write in paragraphs. Therefore, teacher created English grammar skill exercises to teach in class and it could support teachers to prepare learning management. It might assist students to improve leaning achievement in English Grammar about sentences. In addition, this could be a guideline for teachers to develop this exercise to teach by using English grammar skill exercises. This exercise could improve students for learning English grammar. This exercise was decided to support students to develop listening, speaking, reading, and writing efficiency. According to English grammar is quite complicated for learners, then English grammar skill exercises could be interested. Also, it could apply for learning and teaching to improve English grammar skill for students. If students learned English grammar relaxing without pressure or stressful, they would be ready to learn efficiency and they would be able to have learning achievement higher.

2. Research Objective

(1) To examine the efficiency of skill exercises for Matthayomsuksa 6.

(2) To determine the student's leaning achievement in English Grammar of Matthayomsuksa 6.

(3) To compare the learning achievement in English grammar of Matthayomsuksa 6 before and after using English grammar skill exercises.

3. Research Framework

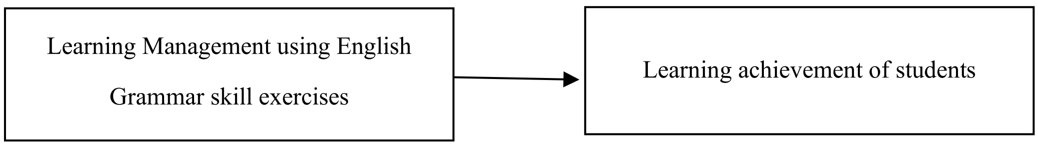

Figure 1 Research Framework

4. Hypothesis

(1) The efficiency of English grammar skill exercises of Matthayomsuksa 6 students would be the standardized criteria of 80/80.

(2) The student's leaning achievement in English Grammar of Matthayomsuksa 6 would be a good level more than 70 percent.

(3) To compare the learning achievement score in English grammar of Matthayomsuksa 6 after using English Grammar skill exercises would be significantly higher than pre-test score at the level of .05.

5. Research Methodology

5.1 Research Design

This research was designed by using a one group pre-test post-test design. The 30-item English grammar test was administered to the students prior to grammar exercises sessions. The English Grammar skill exercises included 1 plan for 16 hours. The research design was shown in Figure 2.

Table 1 One group pre-test post-test design.

Pre-test	Treatment	Post-test
T_1	X	T_2

T_1 represents Pre-test

T_2 represents Post-test

X represents English Grammar skill exercises

5.2 Population and Sample

(1) Population

The population of this research was Matthayomsuksa 6 students studying at SarasasWitead Klongluang in Semester 1, of the 2019 academic year.

(2) Sample

The subjects were 39 Mattayomsuksa 6 students randomly drawn from those studying at Sarasas WiteadKlongluang School in the first semester of the 2019 academic year.

5.3 Variable

Independent Variable : Learning Management by using English Grammar skill exercises

Dependent Variable : Learning achievement of students

5.4 Research Instrument

(1) The English Grammar skill exercises on sentences. The exercises were prepared by the researchers by adapting them from the various grammar exercise books. The exercises were then scrutinized and rated by three experts using a 5-point scale , ranging from excellence, to very good, good , fair and to poor. The exercises were rated at an excellence average at 4.78; the overall efficiency, based on a 80/80 criteria, was found to be at 80.40/85.90.

(2) The lesson plan of English grammar included the concept of the basic education core curriculum B.E. 2551(Revised edition B.E.2560). There is only one unit consisting of 16 hours. The statistics used for analyzing the reliability of the lesson plan were percentage, average ($\overline{X}$) and standard deviation (SD). The English grammar skill exercises had a good reliability ($\overline{X}$ = 4.56).

(3) English grammar learning achievement test was a 30-item, multiple choice test, with the Index of Item-Objective Congruence of 1, the validity of 0.60-1.00; the difficulty of 0.00 – 1.00; the discrimination of 0.10 – 0.80, and the reliability of .99.

5.5 Data Collection

At the beginning of the session, a pre-test was administered to the subjects, and the post-test was given at the end of the experiment session. Data was collected by both the pre-test and the post-test.

5.6 Data Analysis

Data were analyzed with descriptive statistics which included percentage, average and standard deviation. The Tools were evaluated for validity, difficulty, discrimination and reliability. Furthermore, efficiency criterion and t-test were used to test the research hypothesis.

6. Research Findings

(1) The English grammar skill exercises for Matthayomsuksa 6 included 1 plan for 16 hours with a pre-test and a post-test to be taken by the subjects. The efficiency of English grammar skill exercises is shown in Table 2.

Table 2 The efficiency of English grammar skill exercises for Matthayomsuksa 6.

Testing	N	$\overline{X}$	SD	Efficiency criterion
Formative (E_1)	39	80.40	0.84	80
Post-test (E_2)	39	85.90	0.15	80
	Efficiency E_1/E_2 80.40/85.90			

From Table 2, the efficiency of the English grammar skill exercises for Matthayomsuksa 6 for the formative and the post-test were 80.40 score (E_1) and 85.90 (E_2), respectively.

(2) The post-test score of the English grammar skill exercises is shown in table 3.

Table 3 Learning achievement of English grammar skill exercises for Matthayomsuksa 6.

Score	Scale	Level	N	Percent	$\overline{X}$	SD
23 – 30	75 – 100	Excellent	28	71.80	26.57	1.83
15 – 22	50 – 74	Good	8	20.51	19.25	2.32
7 – 14	25 – 49	Fair	3	7.69	13.67	2.19
0 – 6	0 - 24	poor	0	0	0	0
Total			39	100	-	-
Overall average			-	80.27	24.08	2.11

From Table 3, the overall average of learning achievement in English grammar skill exercises for Matthayomsuksa6 was 80.27 percent which was at an excellent level. For an excellent level, 28 students achieved the score of between 23-30 or about 71.80 percent. For a good level, 8 students achieved the score of 15-22 or about 20.51 percent.

(3) In the Comparison of the learning achievement in English grammar skill exercises for Matthayomsuksa 6, the pre-test and the post-test score are shown in Table 4 below.

Table 4 Comparison of the Pre-test and the Post-test scores of learning achievement in English grammar skill exercises for Matthayomsuksa 6.

Testing	N	Full score	$\overline{X}$	SD	t	p-value
Pre-test	39	30	14.28	4.49	10.11*	.000
Post-test	39	30	24.08	4.68		

* p <= .05

From table 4, There is a significant difference between the pre-test learning achievement in English grammar skill exercises score and that of the post-test score of Matthayomsuksa6 students at the .05 level.

7. Discussion

This research is a study of learning achievement in English gramma skill exercises for Matthayomsuksa 6 students. The results can be discussed as follows:

(1) The efficiency criterion of English grammar skill exercises for Matthayomsuksa 6 was found to be at the 80.40/85.90 of E_1/ E_2 and it was higher than standard criteria. It might be that English grammar skill exercises have been checked, suggested, and corrected by experts. Also, it was tried out and tested before using with the example group. The English grammar skill exercises assisted students to understand the content better and with longer duration of retention. In addition, it was suitable for students, and the achievement test was easy to understand. Furthermore, students can feel enthusiastic to study. These results are in accord with the findings found by PattamawadeeKhajornkiat and SutathipNgamnil (2018) who studied The Development of English Instructional Package in Basic English Grammar for Prathomsuksa 5 Students. The constructed instructional package was found to have a very good level of appropriation and with the efficiency value of 84.90/85.00. Furthermore, this finding was also in congruence with that of KanuengnitRungrot (2013)'s study on The Development of the English skill activities package through the Questioning Technique for students in grade six. The efficiency of the English skill activities package was 89.55/85.18 which was higher than the standardized criteria of 80/80.

(2) The overall score of English grammar's learning achievement after using English Grammar skill exercises for Matthayomsuksa 6 was found to be at a good level (80.27%) which is in accordance with the assumption. This might be because the students have more time to study and practice. Students can manage their learning plan by themselves. This finding was in line with that found by JariyaChongnanurak (2012) who studied English Grammar's Learning Achievement about Infinitive and Gerund by Inductive and Explicit Method. The learning achievement was found to be at a good level ($\overline{X}$ = 83.73).

(3) The post-test score of the Learning achievement in English Grammar skill exercises for Matthayomsuka 6 was found to be significantly higher than the pretest score at the at .05 level. The reason for this might be that the students had more than enough time to practice and sharpen their skills in class. Furthermore, the exercises were arranged in sequence starting from the easier exercises to a more difficult and

more complicated ones. A teacher was available in class to help the students when they had difficulty in understanding the exercises. The findings were in accord with those found by ThidaNipitwitaya (2017) in her study on Matthayomsuksa 3 Students's Achievement in English Grammar by using Past Simple Tense work-book at NguiraiBoonmee Rungsarit School, NakhonPathom Province. The students taught using a Past Simple Tense workbook had a significantly higher achievement score than those taught with a conventional method at a level of .05. Moreover, the findings were also in congruence with those found by learning achievement in English grammar skill exercises related to research of KasomMatden and NisakornCharumanee (2017), in their study on the Ability and Relationship between Grammar ability, Reading and Writing skills.

8. Suggestion

7.1 Recommendations for Practice

(1) Teachers should develop English Grammar skill exercises to be in lockstep with the current practices and technologies so that the exercises and activities look up-to-date and more engaging. For example, teachers should develop an online English Grammar skill exercise, or web-based exercises.

(2) Teachers should have more activities at their disposal to motivate the students to participate in the activities with interest and enthusiasm as well as to assist students in practicing in different process skills. Then, students can learn and search the knowledge by themselves.

7.2 Recommendations for future research

A similar study should be undertaken with online setting. That is, instructional packages should be made available online in either a CAI or a web-based format so that they are easily accessible to students and they can study those materials at a place and place convenient to them. The achievement of the online mode can then be compared with those of the paper-based mode.

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THE USE OF NUMBERED HEADS TOGETHER (NHT) ON THE LEARNING ACHIEVEMENT OF BHUTANESE GRADE SIX STUDENTS IN SCIENCE

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ABSTRACT

This study investigated the effectiveness of Numbered Heads Together Strategy on student's learning achievement and satisfaction of Grade Six Bhutanese students in Science. The study adopted mixed methods approach to investigate the impact of this intervention technique with a target group of 32 Grade Six students who were selected for the study as the research school has only one section of Grade Six. The target group was taught through Numbered Heads Together Strategy. The quantitative data gathered through the Pretest and the Posttest were analyzed using sample paired t-test based on mean, SD and significant value. The qualitative data collected through students' Learning Behavior Observation Sheet and Structured Interviews were examined within the framework of content analysis to arrive at significant themes. The result of the Pretest and the Posttest score analysis discovered significant difference between the Posttest mean ($\bar{x}$=14.81) and the pretest mean ($\bar{x}$=8.56) of the sample group with the mean difference of 6.25. The significance value was 0.01, which clearly indicated a significant increase in the Posttest scores as compared to those of the Pretest scores. Improvement in the Posttest score compared to the Pretest score was the clear indication of effectiveness of Numbered Heads Together as a teaching and learning strategy. Qualitative data for Learning Behaviors Observation and structured interviews were analyzed with emerging themes apparent from the feedback of peer observation and students' responses within the framework of content analysis, From the analysis of qualitative data, it was found out that students showed remarkable satisfaction on using Numbered Heads Together Strategy in learning Science. Thus, the Numbered Heads Together Strategy had a significant effect on Bhutanese Grade Six students' learning achievement in Science. Analysis of both the data revealed positive impact on learning achievement and satisfaction. Hence, the Numbered Heads Together Strategy is highly recommended for teaching science and other content area subjects.

Keywords: Numbered Heads Together, Learning Outcome and Learning Satisfaction.

1. Introduction

Science has shaped and advanced human culture and well-being to greater height with innovation and creativity. Science is the fundamental mechanism to discover the hidden top secret of the universe for the betterment of human existence (Maqbool, Bahadar, & Abdollahi, 2014). The ideas and ideology generated from science undergoes constant changes. Scientific knowledge is based on facts and the expertise in science education often justifies their work through arguments, laws, findings and debates, thus making science knowledge in our daily lives a pertinent and significant in this current world.

Science education is placed utmost importance like any other subjects such as language and mathematics. Science is considered one of the major and compulsory subjects in Bhutanese curriculum. However, considering the fact that science education has become the locus in Bhutanese education system, students across the country seemingly perform poorly in science subjects.

According to Bhutan Education Blueprint 2014-2024 (2014), the average test scores in science have ranged between 39.6 and 44.7 in class IV, between 43.7 and 48.4 in class VI, and between 43 and 53.2 in class VIII. This finding clearly indicated that the students' process of acquiring knowledge and learning achievement in science is relatively low compared to other subjects. The performance of science in Bhutan is becoming a growing concern among the science educationists. Considering these significances, teachers strive to help learners to comprehend science concepts clearly instead of memorizing the science ideas and statements. Moreover, according to the report presented by Bhutan Council for School Examination and Assessment (BCSEA, 2018), the number of children who scored more than 80% in science subject in board examination is just 2.58% comparatively low compared to how children performed in other subjects such as computer application, history and geography.

Having significant encouragement from previous studies carried out by number of researchers, the researcher intended to find out the effect of Numbered Heads Together (NHT) on Bhutanese Grade Six students' learning achievement and learning satisfaction in science.

2. Research Objective

1. To examine the Grade Six Bhutanese students' learning achievement in Science through using Numbered Heads Together Strategy.

2. To explore the learning satisfaction of Grade Six students' on using Numbered Heads Together Strategy.

3. Research Framework

This study was quasi-experimental study. The target group was taught using Numbered Heads Together an interventional tool. Figure 1 below shows the research framework.

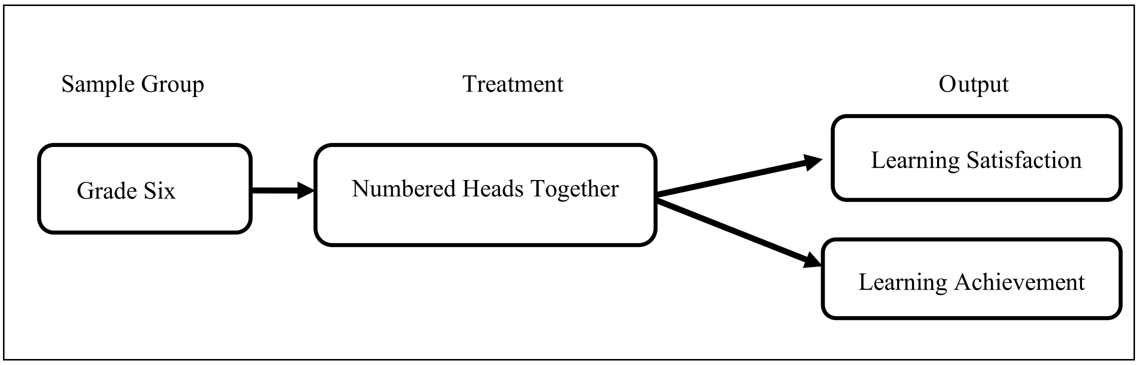

Figure 1 Research Framework.

4. Literature Review

4.1 Science Curriculum of Bhutan

The teaching and learning of science in Bhutan formally started with the beginning of modern education in the 1960s.In 1986, the 'New Approach to Primary Education (NAPE) was started, with the main motive to familiarize on the Science curriculum for primary Classes ranging from IV to VI in our own context and to encourage the educationists to teach Science focusing on our country's natural and social surroundings (Department of Curriculum and Research Development [DCRD], 2012). Formal Integrated Science teaching in Bhutan begins from Grade Four and ends at Grade Eight. From Grade Nine the science subject is further divided into three different subjects namely, biology, physics and chemistry. Science textbooks for Grade Six entails chapters which are included under six units in a systematic sequence to enable connection from one content to another. The prescribed objectives have been framed to keep the educationists and the learners directed towards achieving their learning goals at the end of the lesson.

4.2 Numbered Heads Together (NHT) approach

Numbered Heads Together (NHT) is an educational approach rooted from the cooperative learning model, which aims at changing the classroom into a lively setting whereby children can actively engage in their daily learning activities. According to Mosik and Sutipnyo (2018), NHT learning strategy is one type of cooperative learning model that is intended to enhance students' social interaction and learning outcomes through active participation. Moreover, it serves as a substitute for the traditional classroom structure. It plays an enormous role in changing a passive classroom setting into a lively classroom setting. Numbered Heads Together is not just confined to arranging students into groups, and it has been described as a tool to holistic development of concepts and ideas.

4.3 Procedure to carry out Numbered Heads Together

Kagan (2017) mentions that Numbered Heads together is a game that guides your class through a series of activities focused to enhance learning through teamwork, active participation, and individual accountability.

Procedures for NHT

1. Provide Think Time: Every individual in the group thinks how to answer the question. No one is supposed to talk during think time.

2. Write the Answer: Student individually writes their own answer on a paper without referring to others.

3. Heads Together: Group members put their heads together and share their responses. They discuss their ideas and come to a common consensus on a team answer

4. Answer the Question.: The teacher calls on any number to answer the questions.

5. Research Methodology

5.1 Research Design

This research used mixed methods approach (qualitative and quantitative) to gather the data. This type of study (Mixed methods) supports the validity in the findings, contributes towards knowledge conception, and broadens awareness of the occurrence better than studies using other approaches (McKim, 2017).

5.2 Population and Sample

The research school has only one class of Grade Six students for 2019 academic year. As a result, the researcher conducted the study with one target group. The target group comprised 32 participants of mixed gender and abilities with the age ranging from 11 to 13 years.

5.3 Variable

For this research, the researcher had one Independent variable Numbered Heads Together. The Dependent variables were Learning achievement and Learning satisfaction.

5.4 Research Instrument

The research instruments used were the Learning Achievement Test (Pretest and Posttest) for the quantitative data. Students' Learning Behaviors Observation Sheet consisting of eight learning behaviors and Structured Interviews consisting of three questions were used to gather the qualitative data.

5.5 Data Collection

The study was carried out for the duration of four weeks. It was in the month of August, 2019. The researcher employed Numbered Heads Together Strategy as the interventional tool to enhance learning achievement and learning satisfaction in science of the Grade Six Bhutanese Students. For this study, the researcher designed four lesson plans. One lesson plan was administered for two sessions with the time limit of 40 minutes per session. The quantitative data was gathered through the Pretest and the Posttest to investigate the effectiveness of the Numbered Heads Together in uplifting the participants' learning achievement. To determine the learning satisfaction in Science on using Numbered Heads Together strategy, the researcher gathered data through learning behavior observation sheet and structured interviews consisting of three questions.

5.6 Data Analysis

All statistical analysis was carried out using computer program. A comparative statistical analysis was carried out using paired sample t-test for comparing the pretest and the posttest scores of the sample group to determine the impact of Numbered Heads Together learning strategy on learning achievement of students in Science. To find out the impact of Numbered Heads Together Strategy on learning satisfaction of the learners, raw data collected through students' learning behavior observation and structured interview was interpreted into responses to the second research question by deriving at obvious themes apparent in the responses of the participants within the framework of content analysis.

6. Research Findings

The two major findings of this study were:

1. Numbered Heads Together enhanced learning Achievement of the Grade Six students in Science.
2. Students showed remarkable satisfaction in learning Science on using Numbered Heads Together Strategy.

6.1 Research question 1 (Will the use of Numbered Heads Together (NHT) enhance learning achievement of grade six students in Science?)

The effectiveness of using Numbered Heads Together Strategy in science was apparent from the findings and analysis of quantitative data collected through the Pretest and the Posttest scores. Prior to execution of NHT strategy, the Pretest consisting of fifteen multiple choice questions and five short answer questions were administered based on the content to be taught. The scores of both the Pretest and the Posttest were recorded and analysed using a computer program. Upon the comparative statistical analysis using paired sample t-test, it was found that the mean score of the Pretest and the Posttest were 8.56 and 14.81 respectively. The mean difference of 6.25 between the Pretest and the Posttest was found. The significance value was 0.01, which indicated significant increase in the scores of the students in the Posttest.

Table 1 Comparison of the Pretest and the Posttest Scores of Sample Group

No.	Item	μ	σ	Interpretation
1	Learning achievement tests: 1) Pretest	8.56	3.64	N=32 Paired Sample t-test (Compared pretest score to posttest score) Mean difference =6.25 P-Value =0 .01
	2) Posttest	14.81	4.13	

6.2 Research question 2 (What is the learning satisfaction of Grade Six students on using Numbered Heads Together in Science?)

The levels of contentment or discontentment had a strong impact on the students' achievement in learning. The High level of learning satisfaction in students depicted their motivation, attitude and enthusiasm in learning certain contents. At the same time, it urged them to move further which usually brought positive improvement and higher learning achievement. In this regard, the second guiding objective of this study was to identify Grade Six students' learning satisfaction on using Numbered Heads Together. For this very purpose, the researcher incorporated students' learning behavior observation and structured interviews to gather qualitative data to support the second research objective and most importantly, to elicit answers for the second research question.

6.2.1 Students' learning behavior observation

Students' learning behaviors were observed thrice during the course of the study by the peer teacher. After analyzing all the observations made by the peer teacher, the researcher drawn a conclusion that students showed remarkable satisfaction in learning science on using Numbered Heads Together Strategy. Moreover, it was concluded into following minor findings:

1. The Peer teacher observed a gradual improvement in students' participation and hence in the later part of the study, all the students were seen active, attentive and engaging in all the activities.

2. The Peer teacher noticed the students' facial expression revealing learning enjoyment and moreover, children were willing to accept the task in the group. Everyone in the group was active irrespective of difference in abilities.

3. The Peer observer noticed that everyone in the class was willing to share their ideas even the ones who hardly spoke in the class started to contribute their ideas later class.

6.2.2 Structured Interviews

Structured interviews were carried out and all students were interviewed at the end of the study. Data were transcribed, interpreted and analyzed using thematic approach to content analysis and eventually, the researcher arrived to this conclusion that students exhibited an immense satisfaction on using Numbered Heads Together Strategy. Students' learning satisfaction was clearly visible as shown in the following analyzed data from the structured interviews.

1. All the students claimed that with the help of Numbered Heads Together Strategy, they were able to grasp and understand the concepts clearly which resulted in securing high achievement scores in the posttest.

2. All the children felt interested during the course of the lesson as everyone was fully engaged in the lesson. Everyone took great interest in learning. They explained that Numbered Heads Together Strategy made them feel like playing games in the group and moreover, sharing ideas with friends made them clear with some of the abstract concepts.

3. Self-directed Learning plays an important role in comparing to learning through lecture. Moreover, learning through activities and carrying out activities themselves retain in their memory for longer duration comparing to learning taking place with lecture method. They could understand the topics clearly when they are made to do the tasks by themselves rather than teacher carrying out the activity.

7. Discussion

From the findings from the study, the researcher could assertively conclude that the use of Numbered Heads Together teaching and learning strategy enhances learning achievement of Grade Six students in Science. Moreover, it ascertains that students showed remarkable satisfaction in learning Science on using Numbered Heads Together Strategy.

7.1 Research Objective 1 (To examine the Grade Six students' learning achievement in science through using Numbered Heads Together**)**

Based on the data gathered through the Pretest and the Posttest, it was found that the use of Numbered Heads Together Strategy was effective in enhancing the learning achievement of the students in Science as there was significant improvement in the Posttest. This clearly indicated the use of Numbered Heads Together Strategy enhances learning achievement of student in Science.

The findings were parallel to the studies carried out by Wora et al., (2017) who focused to develop and enhance the learning activity and achievement of group of a 10th grade with a total of 30 students in a vocational high school through application of Numbered Heads Together (NHT) approach. It was found out that the application of NHT teaching and learning model promoted engagement within the learning activity and enhanced the level of achievement. Moreover, this study is in line with findings of Corebima and Leasa (2017) who concluded that NHT learning model encouraged the students to cooperate in a group so well that created a meaningful learning process and enhanced the students' cognitive achievement.

The findings of this study were consistent with the findings of Heriwiyanti, Subroto, & Suprijono (2019) who found out that Numbered Heads Together teaching and learning model had a significant impact on improving 4th grade students learning outcome in social science.

7.2 Research Objective 2 (To explore the learning satisfaction of the students' on using Numbered Heads Together**)**

The instruments used for answering the second objective of the study were Students' learning behavior observations and structured interviews. The data collected through these instruments were analyzed and interpreted. Through these instruments, it was found that the students who were taught using Numbered Heads Together Strategy showed remarkable satisfaction in learning Science on using Numbered Heads Together Strategy. Moreover, they claimed that they were improved in a given following ways:

1. Promoted active participation and showed greater degree of satisfaction.
2. Sharing ideas made concepts clear.

3. It created lively classroom setting which made the mind of children to think like playing games.

4. It encouraged team work making them to respect each child's views.

5. Boost their confidence in class participation.

6. Took individual role for own learning and developed greater interest in learning.

The findings for this objective was parallel with the findings of Mustami and Saferi (2018) as the incorporation of the NHT learning model made the learning environment more conducive and livelier for the learners where students became more active and learning became more student-centered. The students attempted to master the materials because all the group members were given a responsibility to complete the task. Besides, the NHT also provided an opportunity for the students to share their ideas or opinions with each other which made them feel their importance of presence in the group and giving them greater sense of satisfaction. One way to improve the learning process and learning results is to use the NHT learning strategy.

The possible reason for such findings could be due to facilitation of active participation and providing them with lots of experiences. This finding aligns with the Kolb (1984) experiential theory of learning which states, learning involves the gaining of knowledge that can be applied in a various range of situations and moreover, concepts are being driven from experiences. Children tend to understand the abstract concepts better when they are made to experience by themselves thus, providing them with greater sense of satisfaction.

This finding supplemented the idea contributed by Daemi, Geranpaya &Laal (2014) the rationale of the learning in groups is to ensure every individual member to take part in the shared task and share their views with friends make the concept and ideas from the lesson clear with peers. It ensures that each team mates take charge of their share of the task in the team

Children seemed to take greater role of leading the group activities and active participation in the groups which boost up their confidence for learning and to obtain shared goals. The high achiever supported the low achiever in learning together. Thus, children learn to depend one another. It is in line with Ananthi & Hwang (2017) who stated that each member in the group must be aware that, so that they could produce successful team work.

8. Suggestions

Through this study, it was clearly known that the use of Numbered Heads Together strategy was effective in improving the learning Achievement of students and it showed greater satisfaction of the learners for learning Science. Having fulfilled both research objectives, the researcher would suggest the following points for practice and future research.

8.1 Suggestions for Practice

1. Numbered Heads together enhances learning achievement of the students. Therefore, the Science teachers should implement this strategy to teach Science.

2. Numbered Heads Together as an activity-based and student-centred strategy. It encourages active participation and facilitates individual accountability. So, this strategy can be used to promote class participation and individual role.

8.2 Suggestions for Future Research

1. The researcher recommends future researchers to study the effectiveness of Numbered Heads Together Strategy in other subjects with different grades.

2. This study was limited to 32 grade six students. Therefore, future researchers are suggested to conduct research on similar topics with the larger sample size and also for longer time duration for more authentic results.

9. Acknowledgement

I would like to express my sincere respect and dedication to His Majesty, the fifth King of Bhutan and Royal Civil Service Commission for the opportunity to study at Rangsit University. I acknowledge my immeasurable thanks to Thailand International Cooperation Agency (TICA) and ministry of Education for the opportunity to pursue Master program.

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THE USE OF PROJECT-BASED LEARNING APPROACH IN TEACHING SCIENCE TO GRADE VI STUDENTS IN A BHUTANESE CLASSROOM

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ABSTRACT

The purposes of this study were to evaluate the extent of learning achievement of Grade VI students in science using project-based learning approach and to assess the perception of Grade VI students towards project-based learning approach in learning science. The research was a mixed methods research. The population of the study comprised 110 students of Grade VI which were divided into three sections consisting of 38, 37 and 35 students respectively in each section. A cluster random sampling method was adopted to select one section of 35 students with mixed abilities and genders. The sample group was treated with project-based learning approach. The study was carried out for four weeks. The data for the study were collected from the achievement test and the structured interview questions. The pre-test and post-test were conducted before and after the treatment to find out the level of achievement of the students. The structured interview was administered after the post-test to find out the students' perception towards project-based learning approach in learning science. The quantitative data were analyzed and interpreted using inferential statistics t-test with $p<0.05$ level of significance, mean, and standard deviation and the qualitative data were analyzed through thematic coding of all the responses to each question for the structured interview.

The findings revealed a significant difference in the post-test scores of the students indicating that project-based learning approach was effective in enhancing the learning achievement of students in science. The mean of the pre-test was 7.48, while that of the post-test was 11.67 with a difference of 4.19. The significant value (P) was 0.01 which was lower than the significant value $P<0.05$ indicating that there was a statistically significant difference between the pre-test and the post-test of the sample group. The majority of the students responded positively to the structured interview questions. The responses exhibited positive opinions towards the use of project-based learning approach in learning science. The students perceived that learning science through project-based learning approach was fun and joyful. They would prefer learning other topics through project-based learning approach as well.

Keywords: Project-Based Learning, Learning Achievement, Perception, Teaching, Science, Students

1. Introduction

Science is knowledge attained through study to practice (Dr. Hani, 2009). That means science involves both the theory as well as practical or learning by doing. According to Gottlieb (1997), science is an activity which requires intellectual faculties to be used to find new or additional information about the environment human beings live in. This acquired knowledge is used for finding new ways to look for patterns to make meaning out of it. The main objective of science is to collect data to explain various natural phenomena.

Bhutan's science education started with a curriculum which was completely influenced by its neighboring country, India. In the beginning, the science curriculum was introduced into the Bhutanese education system sometime in 1960s with "Nature Rambles", the then Department of Education.

In the year 1986 the 'New Approach to Primary Education' (NAPE) got introduced successfully and placed more firmly the curriculum for primary science: Classes IV-VI. It was to make the curriculum more suitable for the Bhutanese scenario to enhance teaching of science that matched the Bhutanese context. The shift was from the traditional method of rote learning to learning by doing through investigation and fair tests to acquisition of scientific skills and knowledge (David Johnson, Ann Childs, Kiran Ramachandran & Wangpo Tenzin, 2008).

Science is given paramount importance in this modern era due to the fast growth and development of the world. Science as a subject in the Bhutanese education system plays a vital role. Therefore, this study intended to find out the learning achievement level and their perception in learning science using project-based learning approach of Grade VI Bhutanese children in a classroom.

2. Research Objectives

(1) To evaluate the extent of learning achievement of the 6th grade students in science using project-based learning approach

(2) To study the perception of 6th grade students on the application of project-based learning approach in science lessons

3. Research Hypotheses

(1) The learning achievement of the Grade VI students in science would improve after learning through project-based learning approach.

(2) Students perceived that project-based learning approach helped them learn better with more fun and enjoyment.

4. Research Framework

This study was a mixed methods research, in which the sample group was treated with project-based learning approach. The pretest was conducted before the treatment, followed by teaching the sample group with the use of project-based learning approach. After teaching the participants for four weeks using project-based learning approach, they were instrumented with the posttest. The researcher conducted a face-to-face interview with the participants after the posttest.

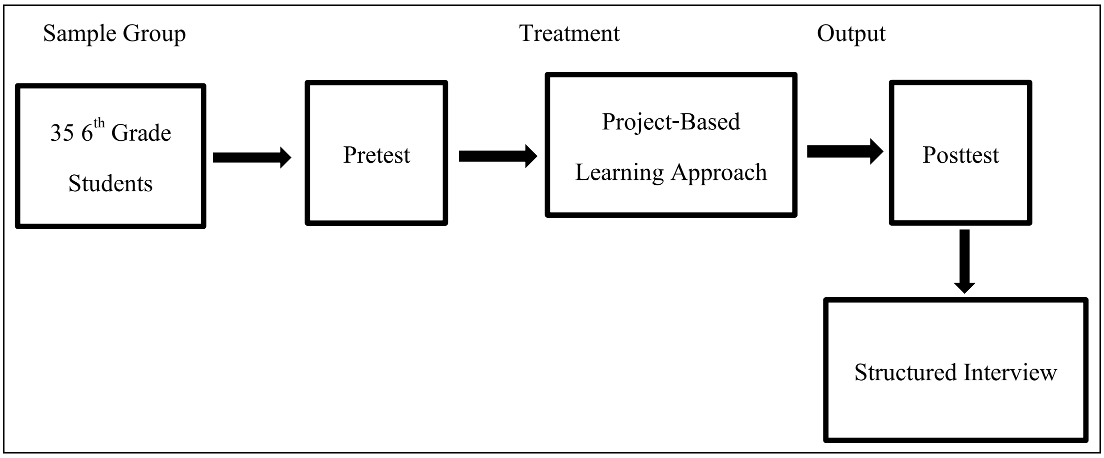

Figure 1 Research Framework

5. Literature Review

5.1 Science Curriculum in Bhutan

Modern education in the 1960s marked as well the advent of Science Education in Bhutan. 'New Approach to Primary Education' (NAPE) was formally started in 1986, aiming to begin the curriculum for primary science especially for Grade Four to Six, mainly to take into consideration the Bhutanese scenario for science education and to encourage teaching and learning science based on the Bhutanese context.

The main aims of Science Curriculum for Primary students of Grades Four to Six are equipping learners with the prospects to advance a scientific personality by investigating a variety of living and non-living things, materials and its properties, and the causes that influence the cosmos in which they live and the day to day happenings. By this stage, students will start to make connections between concepts, and elucidate things by the use of simple replicas and concepts and start to think in different ways.

5.2 Project-Based Learning Approach

Since project-based learning is explained in many ways, therefore, there is no single concrete reliable definition. Thus, project-based learning is defined as a "model", an "approach", a "technique", "learning", and "teaching". In other words, it can be defined as a way of teaching and learning that depends on the task assigned to produce the expected learning outcomes.

Project-based learning is basically learner focused, providing students the liberty for serious study on ideal topics. Learners are left on their own to make personally-meaningful pieces that are depictions of their learning. Project-based learning is one of the effective strategies for teaching learners 21st Century skills, such as exchange of information, teamwork, planning, management of time, investigation, self-evaluation, and reflection skills. Project-based learning is based on engaging students according to their interest and motivation through realistic activities. Students work together till the end until they create something new, and finally submit their finished products: PowerPoint presentations, models, charts, or bulletins (Ryshke, 2012).

Fitzgerald and Smith (2016) state that teachers are the developers of the curriculum. Therefore, teachers should not only deliver the content knowledge, but also make the learning meaningful, fun and enjoyable within the context of their own classrooms which will in turn have the direct impact on students learning achievement. DCRD (2011) states that students learn best in science when engrossed in a variety of exploratory tasks such as questioning, planning investigation, conducting experiments, explanations of their findings and sharing their ideas to others in different manners, which encourages learners to think critically both in the science classroom as well as in their daily lives as citizens.

5.3 Learning Theories Related to Project-Based Learning Approach

Constructivism theory, constructionism theory and Cooperative learning theory supported project-based learning approach. According to these theories, learning occurs when learners build their own knowledge depending upon their past experiences.

The theories mainly emphasized active engagement of students in the learning process, thereby shifting the role of teacher-centered teaching to student-centered teaching and learning. Students were fully involved during the learning period. They were given freedom to move, discuss, share, help each other's learning and even enjoyed greater freedom to ask and seek help from the teacher as well as from peers and concerned stakeholders outside the classroom, which created stress free classroom.

6. Research Methodology

6.1 Research Design

The researcher adopted the mixed methods research for this study to 6th grade Bhutanese students to find the learning achievement and their perception towards use of project-based learning approach in learning science.

6.2 Population and Sample

The total number of participants for the study comprised 110 students from three sections of 6th grade students in one of the schools in Bhutan. The students were in the age range of 11–15 years old in 6th grade. The target school consisted of classes from Preprimary to VI. The researcher used the cluster random sampling to select a section of the sample population from the total population of three sections of 6th grade students. There were 35 students of mixed gender and mixed abilities in one section chosen for the purpose of the study with 19 boys or 54.3% and 16 girls or 45.7% respectively.

Table 4.1 Demographic information of the subjects

Gender	Male	Female	Total
No. of participants	19	16	35
Percentage	54.3%	45.7%	100%
Age Group	11 to 15 years old		

6.3 Variables

This study consisted of two variables: independent and dependent variables. Independent variable was project-based learning, an instructional approach used for treatment sessions, whereas the dependent variables are the learning achievement and the learners' perception towards the application of project-based learning approach in learning science.

6.4 Research Instrument

The instruments used for the study were:

1. Lesson Plan (Intervention Instrument)

The researcher prepared 4 lesson plans of 100 minutes each. The lesson plans were prepared incorporating project-based learning approach to teach the topic 'Living Things and Their Environment'. The topics were divided into sub topics which were relevant to project-based learning approaches. The researcher taught once a week. The study lasted for four weeks.

The lesson plans were validated by three experts, a professor from Rangsit University and two senior teachers from different schools in Bhutan respectively. The average rating of Item-Object Congruence (IOC) for the lesson plans were rated +1, which showed that the plans were valid.

Table 4.2 Table of content for the treatment lessons

Lesson Plans	Topic	PBL Approach	Time
Lesson Plan 1	How humans and animals affect habitats	Field-Trips	Week 1
Lesson Plan 2	How animals adapt to their habitat	Documentary/Building Model	Week 2
Lesson Plan 3	How plants adapt to their habitat	Site Visit /Herbarium	Week 3
Lesson Plan 4	Helpful and harmful organisms	Hospital Tour /Poster Design	Week 4

2. Learning Achievement Test (Quantitative Instrument)

The test carried 4 questions divided into sub-parts with 18 items, totaling to 20 marks (the first question with 5 MCQs, the second question with 5 True or False statements, the third question with 5 Fill in the Blanks statements and the fourth question with Short Answer Type (SAQ) questions), which were based on the content of the study "Living Things and Their Environment". The pretest was conducted at the beginning of the study before the treatment whereas the posttest with the same questions as the pretest was conducted at the end of the treatment to the sample group to compare their learning achievement.

The learning achievement test questions were validated by the three experts, the average rating of Item-Object Congruence (IOC), rated by the three experts was 0.96, which indicated that the test questions were valid. The researcher piloted the learning achievement test with 35 6th grade students of a different section in the same school, to check its reliability. The Cronbach's alpha (α) result to the achievement test computed to 0.75, indicating the instrument was reliable.

3. Structured Interviews (Qualitative Instrument)

To find the students' perception towards project-based learning approach in learning science, each student was conducted with a face-to-face interview with the researcher after the treatment of the approach. The structured interview consisted of 5 questions. All the questions were categorized into a different theme each for analyzing the data.

Table 4.4 The structured interview questions

No	Structured Interview Questions	Theme
1	How did you feel while learning science through project-based learning?	State of Mind
2	What do you like most about project-based learning?	Preferences
3	What do you dislike the most about project-based learning approach?	Dislikes
4	How did your interest in learning science change because of your participation in project-based learning approach?	Revolution in Learning
5	Would you prefer to learn other topics through the project-based approach?	Desire to Learn

6.5 Data Collection

The study was carried out for a period of four weeks. It was in the month of August, the second term of the academic year 2019. The researcher followed mixed methods research design, which consisted of both qualitative and quantitative data. The quantitative data were gathered from the learning achievement tests (pretest and posttest), while structured interviews were conducted with the sample group after the posttest to find out the children's perception on the use of project-based learning approach.

6.6 Data Analysis

The data analysis was carried out in two areas:

i. Test score analysis to find the learning achievement of 6th Grade students

ii. Thematic analysis of the structured interview questions through coding to find out the perception of 6th grade students towards project-based learning approach in learning science.

7. Research Findings

The study concluded that the results of the mean, standard deviation and significance value computed using one sample t-test indicated that there was a substantial gain in the posttest scores as a result of using project-based learning approach. In other words, project-based learning approach increased the learning achievement of the students in science and was found to be an effective method in teaching science.

Table 5.1 Pretest and posttest comparison.

No.	Item	μ	σ	Interpretation
1	Learning achievement tests: 1) Pretest	7.48	3.10	N=35 Paired Sample t-test (Compared pretest score to posttest score) Mean difference =4.19 P-Value = .001
	2) Posttest	11.67	2.77	

The second major outcome of the research was that children exhibited positive perception towards the use of project-based learning approach in learning science. This finding revealed that students were positive towards the approach. Almost all the students enjoyed learning with project-based learning approach throughout the learning period.

8. Discussion

This study revealed that the use of project-based learning approach in teaching science to 6th grade students improved their learning achievement and they had exhibited positive perception towards the use of project-based learning approach in learning science. This was evident from the learning achievement test results of the students which showed the mean difference of 4.19% in pretest and posttest of the sample group. There was a vast difference in pretest score of the students before the treatment. With the inclusion of the project-based learning approach, the majority of the students scored high in posttest with the 2-tailed significant value of 0.001.

This finding was in line with the study carried out by Agustina (2012) and Summers and Dickinson (2012), which state that project-based learning approach improved the reading and speaking ability of the students as they were involved in their own learning and it trained them to become independent, critical thinkers and life-long learners. Project-based learning offered a very good substitute to traditional instruction and improve students' academic achievement.

In this study, students were engaged with the activities in teams and were given opportunities to present their work to the class. Constructivism theory, Constructionism theory and Cooperative Learning theory supported this finding of the study. According to these theories, learning occurs when learners build their own knowledge depending upon their past experiences. The theories mainly emphasized active engagement of the students in the learning process thereby shifting the role of teacher from teacher-centered to student-centered teaching and learning.

The positive responses from the students with regard to the students' perception towards project-based learning approach in learning science also revealed that students exhibited positive perception towards the use of this approach and made the lesson interesting, fun learning and aroused curiosity in learning further with project-based learning approaches. This result was parallel with the findings of Ozdemir (2006), Bas (2011), and Muhamad Hugerat (2016). Project-based learning was useful in enhancing students' academic success level. Students learn to be responsible, enthusiastic to learn and become more knowledgeable by getting varied views and understanding of others in the lesson.

Learning through projects gives autonomy to students, freedom to choose, work time without monitoring and accountability than teacher-centered instruction and traditional projects (Thomas 2000). Strobel and Barneveld (2009) in their study found out that project-based learning was greater when it came to long-term retention, skill development and satisfaction levels of students and teachers.

According to this study, the possible reasons for such findings could be due to conducive and friendly atmosphere as well as due to the active involvement of the students in the learning tasks. Students were fully involved during the learning period. They were given freedom to move, discuss, share, help each other's learning and even enjoyed greater freedom to ask and seek help from teacher as well as from peers and concerned stakeholders outside the classroom which created stress free classroom.

The other possible reason for positive perception for the use of project-based learning approach could be due to the use of different projects in the lesson. The students were found very curious and excited while doing the activities. The pupils were enthusiastically engaged and motivated throughout the learning process. The other reason also could be due to the free movement (for example during the field trip and preparing of herbarium, students got out of their seats to team up with their team members) and equal opportunities are provided to every student to talk and share their thoughts. In addition to the academic achievement, students expressed positive attitude towards learning. Students were found joyful to learn through project-based learning approach for they were able to move forward at their own will and at the same time help others' in learning through a caring and reassuring education situation.

9. Suggestions

9.1 Suggestions for Practice

1) Teaching through project-based learning approach had positive impact on learning achievement of the students. The results from this study showed that the learning achievement score of the posttest was higher than that of the pretest score. Therefore, use of project-based learning approach into daily classroom teaching is highly recommended.

2) Teachers may also try teaching other topics in science using different project-based learning approaches to make their lessons interesting and engaging to enhance students' learning.

3) Students showed positive perception in learning science through project-based learning approach. Thus, use of project-based learning approaches in daily teaching in the classroom is highly recommended.

9.2 Suggestions for Further Research

1) Further research may be carried out to study the effectiveness of project-based learning approach in other subjects and other levels of education.

2) Further research can be carried out for longer period of time to make results more reliable and significant.

3) In conclusion, further studies can be carried out to find out the influence of variables like gender, age, level of study, mode of study etc. on project-based learning approaches. It could be used in different learning situations to further expand the knowledge of students' learning on project-based learning approaches and students' academic achievement.

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A STUDY OF SKILLS AND PROCESS OF DESIGNING LESSON PLANS FOR PRE-SERVICE TEACHER

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ABSTRACT

The purpose of this study was to study the skills and processes of designing lesson plans for pre-service teachers. In this study, 11 experts were interviewed in terms of general circumstances about both basic skills necessary for designing lesson plans and the acquiring patterns of designing lesson plan skills and evaluating the appropriateness of skill training style for designing lesson plans. The results revealed that

1. Basic skills necessary for designing lesson plans consisted of 4 skills including; 1) Analyzing student skills, 2) Learning skills, 3) Associating skills, and 4) Designing lesson plan skills.
2. It was found that the procurement pattern of designing lesson plans skill had 4 steps as follows; 1) defining problems and analyzing data, 2) review and search for knowledge, 3) preparing for designing lesson plans practice, and 4) performing lesson plans design.
3. Steps in each designing lesson plan skill were in the high level.

Keywords: designing lesson plans, pre-service teachers

1. Introduction

Higher education management aims to develop people to have 2 important characteristics. The first, to make those who have graduated turn to be an important manpower of the country. The second, to develop learner to be a complete people in terms of physical, mental, emotional, social, and intellectual, so higher education management has to emphasize on organizing activities according to the curriculum for enhance life experiences (Phenphanor phungpeg, 2014). Designing teaching or lesson plan is an essential task for teachers. Teachers will be confident in their teaching if they plan the teaching correctly according to principles. They will cover all the content, and teach with guidelines and goals. Thus, teachers are required to have deep understanding in preparation and concepts of lesson plan steps for leading the learning to the defined goals effectively (Oaporn Jiteatng, 2012). A good lesson plan should be systematically related to the theory, learning or teaching principles (Tisana Kammanee, 2014).

At present, most pre-service teachers encounter the problems in teaching design by selecting fixed formula method to use in teaching and learning. The lesson plan consequently is unsuitable for classroom content (Rossarin Jermataisong et al., 2013) in accordance with the data that the researcher got from interviewing pre-service teachers individually. It was found that students had problems about designing lesson plan. They could not write lesson plan according to the components of lesson plan especially in learning activity part. Students could not design activities in accordance with learning objectives and measurement and evaluation method because of the limited practice time.

The researcher would like pre-service teachers to practice designing lesson plan skills in order to be good guidelines in terms of connecting knowledge for students to apply in their own ways.

2. Research Objective

To study the skills and processes of designing lesson plans for pre-service teachers.

3. Research Framework

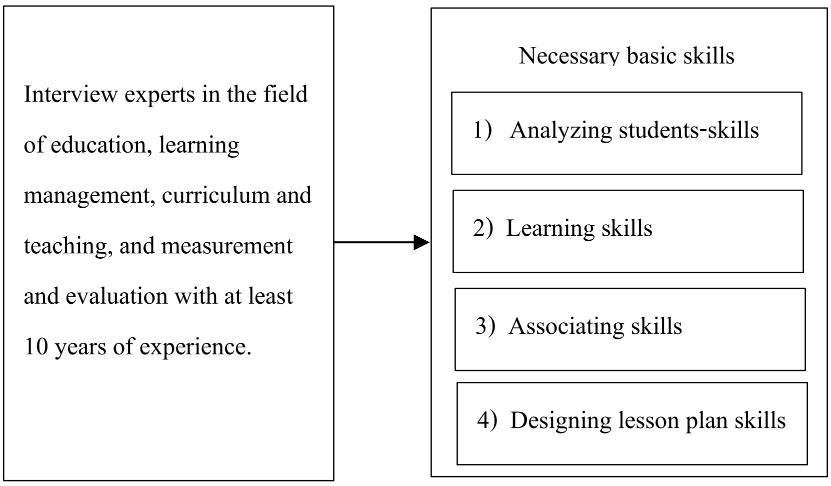

Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

This study is a qualitative research with the interview of experts.

4.2 Population and Sample

(1) Population

Experts in the field of education, learning management, curriculum and teaching, and measurement and evaluation with at least 10 years of experience.

(2) Sample

By means of purposive sampling, 1 1 experts in the mentioned fields were chosen to get involved in this study.

4.3 Variables

Variable included the basic skills for necessary for designing lesson plans.

4.4 Research Instrument

(1) Interview for experts included 3 open-ended questions on general circumstances about basic skills essential for designing lesson plans. The interview data was synthesized to acquire the patterns of designing lesson plans practice.

(2) Close-ended questionnaire was handed to expert for evaluating the appropriateness of designing lesson plans practicing style.

4.3 Data Collection

(1) The researcher interviewed experts for the first round to get general circumstances about basic skills essential for designing lesson plans. In addition, the second-rounded interview was done to gain more information about the acquiring patterns of designing lesson plan practice.

(2) The synthesized acquiring patterns of designing lesson plan practice were handed to experts to evaluate appropriateness.

4.4 Data Analysis

Descriptive analysis was used to calculate means and standard deviations. In addition, content analysis was used to analyze qualitative data.

5. Research Findings

Besides reviewing literatures, the researcher had interviewed 5 experts in the field of education, learning management, curriculum and teaching, and measurement and evaluation with the experience of at least 10 years. After categorized, collected similar opinions, differentiated opinions, and reviewed literature, the data from the interview were synthesized.

5.1 General circumstances about basic skills for designing lesson plans

It was found that necessary basic skills for designing lesson plan comprised of 4 skills; 1) Analyzing student skills, 2) Learning skills, 3) Associating skills, and 4) Designing lesson plan skills as shown in Figure 2.

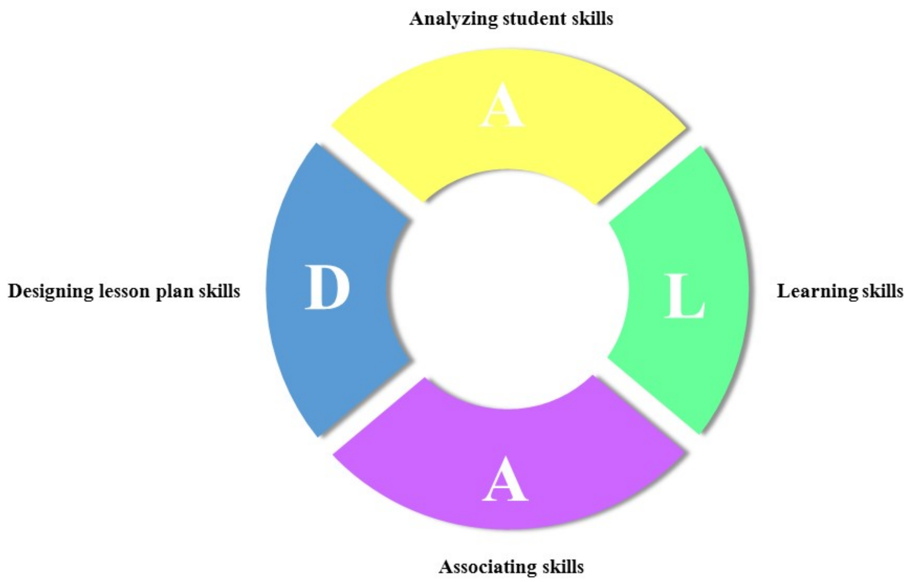

Figure 2 Necessary basic skills for designing lesson plan

5.2 Synthesis of acquiring pattern of designing lesson plan skill practice

It was found that pattern of designing lesson plan skill practice included 4 steps following by; 1) defining problem and analyzing data, 2) review and search for knowledge, 3) preparing designing lesson plan practice, and 4) performing lesson plan design, as shown in Figure 3.

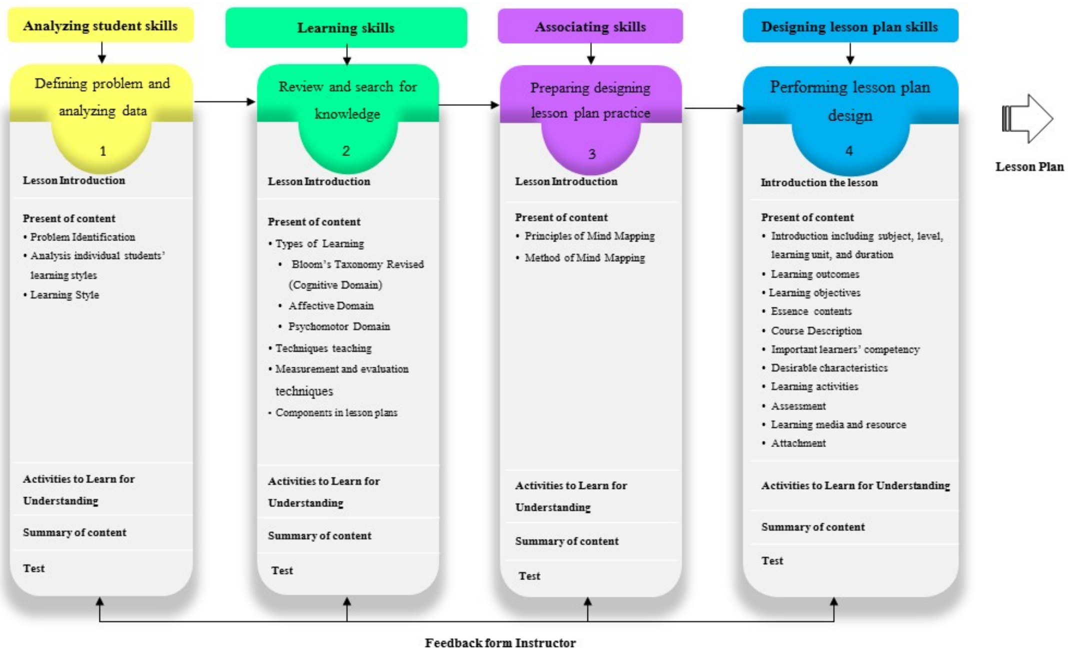

Figure 3 Acquiring pattern of designing lesson plan skills

Acquiring pattern of designing lesson plan skills could be described as followed;

1. Defining problems and analyzing data

1.1 Assignment from teacher for designing lesson plan

1.2 Learner analysis meaning the analysis of students' learning styles individually to know basic knowledge of each learner and learning style to get learners better understand the content. Considering that the ability of each learner was different, learning activities were designed properly. Therefore, learners were learning and developing 3 skills including cognitive domain, affective domain, and psychomotor domain.

2. Reviewing and searching for knowledge included allowing skill-practice participants learned from teachers and did self-inquiry for them to present previous experience or knowledge. Moreover, they could review teaching professional knowledge especially designing lesson plan. The subjects were as followed; 1) Cognitive domain, 2) Affective domain, 3) Psychomotor domain, 4) Techniques teaching, 5) measurement and evaluation techniques, and 6) components in lesson plans.

3. Preparing for designing lesson plan practice was knowledge comprehension in the form of mind mapping, from the following 2 steps; 1) defining problems and data analysis and 2) reviewing and searching for knowledge, to present the relationship of the process and thinking process management in every step in order to apply the information to prepare for designing lesson plan practice step.

4. Practicing lesson plan design was interpretation, transfer knowledge, feeling, story, as well as experience using alphabets as the transferred tool referring to the context of lesson plan designers. The following were components of lesson plans, according to (Oaporn Jiteatng, 2012): 1) Introduction including subject, level, learning unit, and duration, 2) Learning outcome, 3) Learning objectives, 4) Essence contents, 5) Course Description 6) Important learners' competency, 7) Desired characteristics, 8) Learning activities, 9) Assessment, 10) Learning media and resource, and 11) Attachment. Practicing lesson plan design was done in 3 steps; 1) in group, 2) in pair, 3) individual.

The researcher developed lesson plan design-skill practicing pattern for pre-service teachers from the evaluation of the appropriateness of lesson plan design-skill practicing pattern by 7 experts. The means of steps in 4 skills; 1) Analyzing students-skills 2) Learning skills 3) Association skills and 4) Designing lesson plan skills, were In the high level (M = 4.28, 4.28,4.08, and 4.02 respectively) as shown in Table 1.

Table 1 The appropriateness of lesson plan design-skill practicing pattern

Items	Appropriateness level		
	M	**S.D.**	**Meaning**
Analyzing student skills	4.28	0.75	Highly appropriate
Learning skills	4.02	1.00	Highly appropriate
Associating skills	4.28	0.92	Highly appropriate
Designing lesson plan skills	4.08	1.16	Highly appropriate

6. Discussion

The study revealed that necessary basic skills for designing lesson plan consisted of 4 skills; 1) Analyzing student skills, 2) Learning skills, 3) Associating skills, and 4) Designing lesson plan skills. Acquiring patterns of designing lesson plan skills had 4 steps; 1) defining problems and analyzing data, 2) reviewing and searching knowledge, 3) preparing for designing lesson plan practice, and 4) performing lesson plan design. The appropriateness of all 4 skills was in high level especially analyzing student skills with the mean of 4.28. The evaluation results were congruent with the synthesis result of acquiring pattern of designing lesson plan skill practice from interviewing experts working in education, learning management, curriculum and teaching, and measurement and evaluation with at least 10 years of experience showing that learner analysis should be the beginning step of designing lesson plan.

7. Suggestion

Designing lesson plan pattern developed in this study should be evaluated for effectiveness and applied in the pilot study.

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THE USE OF VISUAL IMAGINARY STRATEGY TO ENHANCE ENGLISH READING COMPREHENSION SKILLS OF GRADE FOUR BHUTANESE STUDENTS

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ABSTRACT

This study aimed to study the effectiveness of Visual Imaginary Strategy to enhance the reading comprehension skills of Grade Four Bhutanese students in Eastern Bhutan. Cluster random sampling technique was adopted to select one section of Grade Four students who were within the age range of 10-13 years old. A mixed methods research design was conducted to study one sample group. The emerging themes from the qualitative data on learning behavior observations were analyzed within the framework of content analysis. Theme 1 investigated the students' attention and interest; Theme 2 examined students' confidence in visualizing and drawing pictures using Visual Imaginary Strategy. The quantitative data gathered from learning achievement tests were analyzed using sample paired t-test based on mean, standard deviation and the $p>0.05$ level of significance, whereas the satisfaction survey questionnaires were analyzed using the descriptive statistical analysis. The score analysis of learning achievement test showed that the posttest ($\bar{x}$=19.26) was higher than the pretest ($\bar{x}$= 11.30) showing mean difference of 7.96. The significance value for the sample group was 0.01, which indicated the significant increase in the posttest scores as compared to those of the pretest. Similarly, the mean score of satisfaction survey questionnaire was computed at 4.82 (strongly agree) on the 5-point Likert Scale. All the collected data indicate that Visual Imaginary Strategy can enhance reading comprehension skills in young students.

Keywords: Reading Comprehension, Visual Imaginary Strategy, Learning Achievement, Learning Satisfaction

1. Introduction

Reading opens the wide range of opportunities to develop intellectual skills, expand one's perspectives, and grow academically, emotionally and socially (Al-Mahrooqi & Denman, 2018, p. 150). It enriches one's knowledge bank and enables him or her to understand the world and everything in it with new perspectives. Van Woudenberg (2018, p. 15) argues that reading is not just seeing words or attending to testimony but reading is a source of knowledge. Thus, reading is exploration and exploration always starts from reading. However, acquiring basic reading comprehension skills have become very important and indispensable for every student to be acquainted with. The reading competency and the ability to comprehend the text written in a foreign language are important skills and they play a very vital role in language learning classes (Chvalova & Stranovska, 2019, p. 87). Reading comprehension skills are not only important in learning English but it determines the performances in other subjects as well. Reading comprehension involves cognitive skills, such as careful attention, memory, perceptual and comprehension processes (Salem, 2016). These reading skills has to be taught and practiced at the primary stage to have a better academic achievement in later stages.

However, unlike many other developed countries, Bhutan follows the prescribed curriculum system. Bhutanese Grade Four students are introduced to reading and literature as one of the four modes of discourse. Through reading, students are expected to learn how to read reflectively and interactively in order to gain knowledge, retrieve information, reflect on content and interpret the meaning (Royal Education Council [REC], 2015). The students should be able to make a comment on settings, characters, dialogue, and events in the stories (Mitchell, 2011, p.58).

Further, stepping into Grade Four is a big shift from lower primary to upper primary for Bhutanese students. It is like taking a big step for Grade Four students and their achievement level declined as they move from lower primary to upper primary level. Based on school level annual performance report (2018) which also aligns with Bhutan Council for School Examination Assessment, the Grade Three students obtained 75.5% in English, whereas the Grade Four could obtain only 66.6% (School Exam Committee, 2018, December). It indicated that the performance level in English declines as they get into Grade Four. In addition, the PISA-D National Report (2019) revealed that students' achievements were in line with students in top countries but significantly below the OECD average with the mean of 45.34 in reading literacy, which is comparatively low. It was found out that poor reading literacy hampered the students' performance in other subjects such as science and mathematics. Rinzin (2019, April19) reports that most students reading without understanding the contextual meaning of the text and one of the main reasons for this was poor reading habits of the in students. The low performance in English is due to students' inability to write quality answers resulting from a lack of reading comprehension level in students (Lhamu, 2016). Subsequently, learning English as a second language with an addition of two more subjects, science and social studies is a hindrance for acquiring reading comprehension skills (Wangmo, 2018). To remedy the problem stated above, the researcher proposed the use of Visual Imaginary Strategy as one of the reading comprehension strategies to enhance the reading comprehension skills in students.

The positive findings from the previous studies conducted in different countries with different Grade levels intrigued the researcher to initiate this study. According to Woolley (2014, p. 227), visual imagination refers to the process of creating mental pictures or images to help in understanding the text. The visual imagination involves the language and thought processes as well as interpretation of visual mental images formed during reading. Readers visualize the scenery, characters, and actions and describe what they see and feel in the text. Gear (2015, p. 68) points out that when readers visualize, the mental images are created, thus leading to better understanding of the text and bringing reading to life. Hence, the confidence level of a reader increases. Similarly, asking the readers to create mental images described in a text can foster deeper understanding and able to express in an accurate way (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013; and Jeanne, 2016, p. 27). Visual imagination not only improves critical thinking but also plays an important role in the development of creativity in students.

2. Research Objectives

1) To compare the comprehension abilities of students in English reading before and after learning to use Visual Imaginary Strategy

2) To study satisfaction of the students' using Visual Imaginary Strategy in reading comprehension.

3. Research Framework

The researcher carried out a quasi-experimental study. The study was focused on only one section of Grade Four students. The sample group was taught using Visual Imaginary Strategy as an interventional tool. The instruments employed were the pretest and the posttest to examine the learning achievement, whereas the learning behavior observation and the satisfaction survey questionnaire were used to investigate the learning satisfaction. Figure 1 below shows the research framework.

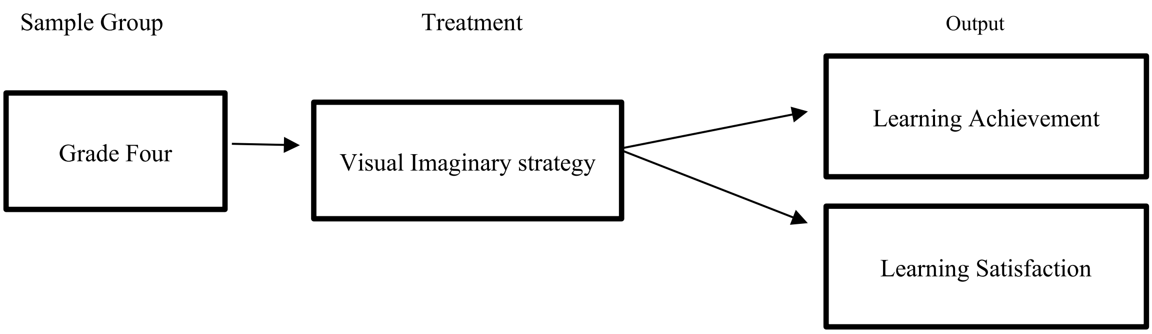

Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

The researcher adopted the mixed methods approach to study Grade Four Bhutanese students' learning achievement and satisfaction in using Visual Imaginary Strategy to enhance reading comprehension.

4.2 Population and Sample

The population of the study consists of 78 grade four students in one of the Lower Secondary schools in Eastern Bhutan. The researcher adopted cluster random sampling to select a sample group of one section that comprised 25 (14 males and 11 females) mixed ability Bhutanese students who were within the age range of 10 to 13 years.

4.3 Variable

This study consisted of two variables; independent and dependent variables. The independent variable was Visual Imaginary Strategy, whereas the students' learning achievement and learning satisfaction were dependent variables.

4.4 Research Instrument

The research instruments administered were students' learning behavior observation sheet for gathering qualitative data, whereas learning achievement tests and satisfaction survey questionnaire were used for collecting quantitative data. Moreover, the researcher also prepared 8 lesson plans integrating the Visual Imaginary Strategy. Each lesson was of 40 minutes per session.

4.5 Data Collection

The study was carried out for a period of four weeks. It was in the month of August, the second term of the academic year 2019. The researcher followed mixed methods research design, which consisted both qualitative and quantitative data. The quantitative data were gathered from the learning achievement tests (pretest and posttest) and the satisfaction survey questionnaire. Likewise, the students' learning behavior observation sheet framed by Archer & Hughes (2011) and Gear (2015) was employed with the purpose to gather adequate qualitative data for the authentic research outcomes.

4.6 Data Analysis

The quantitative data gathered from the learning achievement tests (pretest and posttest) and the satisfaction survey questionnaire were analyzed using sample paired t-test and descriptive statistical analysis, whereas the qualitative data gathered from learning behavior observations were analyzed within the framework of content analysis. The 14 learning behavior specifications were divided into two broad themes. Theme One investigated the students' attention and interest; Theme Two examined students' confidence in visualizing and drawing pictures using Visual Imaginary Strategy. These two major themes were further split into smaller themes. The observations and comments made by the peer teacher were analyzed through content analysis following the four steps by Bengtsson (2016). The four steps include decontextualisation (thematic coding), recontextualization (comparing with main data), categorization and compilation.

5. Research Findings

The following findings are based on two research objectives. The findings from this study revealed that the use of Visual Imaginary Strategy was an effective strategy to enhance reading comprehension skills and students were satisfied when the Visual Imaginary Strategy was used in their reading classes.

5.1 Learning Achievement Tests

The mean score for the pretest was 11.30 and the standard deviation was 4.528, whereas the mean score of the posttest was 19.26 and standard deviation was 2.747. The sample group's posttest mean score was higher than the pretest mean score. There was an increase in the mean score of the posttest by 7.96 from that of the pretest. Moreover, the significance value or p-value was .000 that is lower than the significant value of p>0.05 which indicates that there is a significant increase in the mean score of the posttest from the mean score of the pretest. Table 1 shows the comparison of the pretest and the posttest scores of the sample group.

Table 1 Comparison of the Pretest and the Posttest Scores of Sample Group

No.	Item	μ	σ	Interpretation
1	Learning achievement tests: 1) Pretest	11.30	4.528	N=25 Paired Sample t-test (Compared pretest score to posttest score)
	2) Posttest	19.26	2.727	Mean difference =7.96 P-Value = .001

5.2 Satisfaction Survey Questionnaires

A set of 10 items were rated by the Grade Four students on Likert Scale with points from "Strongly Agree" to "Strongly Disagree." The rating of mean for each statement was calculated and further divided into one decimal place for interpretation as; 4.5-5 Strongly Agree, 3.5-4.4 Agree, 2.5-3.4 Neutral, and 1.5-2.4 Disagree, and 0.00-1.4 Strongly Disagree. The statistical data analysis was interpreted in terms of mean and standard deviation. The overall mean rating was computed at 4.82 on the 5-point Likert Scale as shown in Table 2.

Table 2 Mean and Standard Deviation of the Satisfaction Survey Questionnaire

No.	Item	μ	σ	Interpretation
1	Satisfaction Survey Questionnaire	4.82	0.410	No. of items=10 Decimal interpretation; 4.5-5= Strongly Agree;3;5-4.4=Agree 2.5-3.4 =Neutral;1.5-2.4 =Disagree 0.00-1.4=Strongly Disagree

5.3 Students' Learning Behavior Observation

The second objective of this study was to investigate students' satisfaction in using Visual Imaginary Strategy in their reading classes. The comments on observation were analyzed within the framework of content analysis following four steps by Bengtsson (2016); decontextualization (thematic coding), recontextualization (comparing with main data), categorization and compilation. The 14 learning behavior specifications were split into two broad themes. The two major themes were: students' attention and interest; students' confidence in visualizing and drawing pictures using Visual Imaginary Strategy. These major themes were further split into smaller themes. Under the first theme; on task behavior, frequent responses, cooperative responses, enthusiasm, feedback and acknowledgement, task completion on time were the emerging sub themes whereas, ability and confidence were sub themes for Theme Two.

1) The peer teacher observed that students were attentive and actively participated in their assigned work. The students were responsive either in verbal or written. Students were found working cooperatively, enjoying the tasks and sharing each other's ideas and opinions. Moreover, the peer teacher had observed that students displayed genuine interest in learning by carrying out the assigned task on time.

2) In the first observation, the peer teacher noticed few shy students when it came to sharing their ideas and opinions to their friends but gradually the majority of the students could wonderfully illustrate the story through drawings and illustrations. Most importantly, the peer teacher observed that each student could visualize independently and possessed creative skills in making a good use of Visual Imaginary Strategy.

3) The peer teacher made a noticeable observation on the use of Visual Imaginary Strategy having the advantages in teaching the Bhutanese folktales with the majority of the students' ability to do the wonderful illustrations, which indicated creative imagination in students.

6. Discussion

Findings from this study, the researcher could confidently conclude that the use of Visual Imaginary Strategy was able to enhance reading comprehension skills of Grade Four students. Moreover, this study has proved that students achieved a high level of satisfaction in using Visual Imaginary Strategy in their reading classes.

6.1 Students' Learning Achievement Test

The First probable factor of an improvement in the posttest score was due to facilitation of Visual Imaginary Strategy with mental model theory. Glenbreg & Langston (1992) supports that within the context of the mental model; visualizing and imagining the pictures help in understanding and retaining the text in many ways. Reading with visualization enabled the students to create mental images about scenes, the settings and events to understand the text better by developing the overall picture and overall meaning in their minds. The images formed during reading and visualizing with reflection helped the students to express their understanding in an accurate way. Moreover, the researcher also observed an improvement in students' reading comprehension skills when Visual Imaginary Strategy was integrated in teaching the reading comprehension text. This study was in accordance with the previous studies carried out by Atoum & Reziq (2016) and Jeanne (2016).

The second likeable factor that supports the findings of this study was the schema theory with Visual Imaginary Strategy. The Schema Theory believes that the knowledge is stored and structured into units of knowledge known as schemata (Ursyn, 2018). An ability to interact and make connections with the reading materials play a vital role in reading comprehension. The findings from the previous studies carried out by Sarlina (2018) support that an effective reading comprehension involves the ability to relate the reading content to one's prior knowledge. The students were able to create a deeper meaning when they combined their imagination based on experiences with the present reading content. When the students could visualize, imagine and represent the story in the form of illustrations and pictures, it showed their ability to connect and comprehend the text better, which brought the significant improvement in their learning achievement test scores.

6.3 Satisfaction Survey Questionnaire on Students' Learning Satisfaction

The findings on statistical analysis revealed that the students were highly satisfied in using Visual Imaginary Strategy in their reading classes. When the researcher integrated this strategy, the students benefited psychologically as they were found responsive and actively engaged in their work. The possible reason could be an active involvement of the students in activity and having them the freedom to share feelings on their imagination and visualization through drawings and illustrations. This study was supported by the previous studies carried out by Lee, Bottem& Sanvik, (2015); Mertz (2015) and Gear (2015) who found out that Visual Imaginary Strategy fostered creativity in students and enhanced their interest in reading whereby bringing a great learning satisfaction in students. Moreover, visualization and imagination on story content makes the reading task easier for the students because they learn to look beyond words and creating images help the understand the text better.

7. Suggestions

7.1 Suggestions for Practice

1) Since the use of Visual Imaginary Strategy was found effective in enhancing the reading comprehension skills that English teachers should apply as one of the strategies. It will help students develop

creative imagination, display wonderful illustrators and most importantly, it will enable the students to understand what is beyond the words and text.

2) English teachers should employ Visual Imaginary Strategy in teaching other genres like poems and essays with different grade levels of students.

3) Teachers teaching other subjects like social studies, science, mathematics, history and geography should familiarize and encourage their students with Visual Imaginary Strategy for predicting, visualizing and imagination. A major benefit from this teaching technique is students can develop their critical thinking, creative thinking and problem-solving skills, which are listed as the 21st century skills.

4) The Dzongkha teachers are recommended to use Visual Imaginary Strategy to teach essays, poems and stories.

7.2 Suggestions for Research

1) The researcher recommends that future researchers investigate whether this study will bring similar results if used with larger groups of students for longer period.

2) Future researchers may examine the effectiveness of Visual Imaginary Strategy with other forms of genres like poems and essays.

3) This study has been focused on Grade Four English; future researchers may investigate the benefits of Visual Imaginary Strategy with different grade levels and subjects.

8. Acknowledgement

I would like to extend my sincere appreciation and heartfelt gratitude to the Royal Civil Service Commission of Bhutan and Thailand International Cooperation Agency for awarding this scholarship. It provided me with opportunities to learn and explore unique culture and traditions along with broadening my academic and intellectual enhancement. Moreover, it would be impossible for me in collecting data without the willingness and support from the principal, the subject teacher and students. Therefore, I would like to express my immense gratitude to them.

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FACTORS AFFECTING COLLEGE STUDENTS' INTENTION TO USE "DIANPING" APPLICATION IN HAIDIAN DISTRICT OF BEIJING, CHINA

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ABSTRACT

This study was aimed to find out factors affecting college students' intention to use "Dianping" application in Haidian District of Beijing in China. These factors were performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, quality of the food, and online review. The total samples were 220college students in Haidian District of Beijing in China. The survey questionnaire was used to be collecting data instrument. The research was revealed that most of the respondents were females, the ages between 24 to 29 years old, undergraduate students, with average monthly allowances of 4,001-5,000 yuan per month. They intended to choose to use the "Dianping" application at lunch time. Moreover, the research found that only *facilitating conditions*, *online review*, and *effort expectancy* had respectively positive effect towards *intention to use* "Dianping" application with statistically significant level of .05. Descriptive statistics and multiple regression analysis were used in the data sets. The implication and future research also suggested in this study.

Keywords: Dianping Application, College Students, Intention to Use, China

1. Introduction

Based on the rapid development and leading force of the Internet and social media, online reviews and the use of the applications to find local restaurants, hotels, and shops have become increasingly popular as an important source of word-of-mouth (WOM), which can influence product sales and profitability (Li, Xie, & Zhang, 2020). Modern Information Communication and Technologies (ICTs) such as smart phones and mobile applications have drastically changed consumers' daily lives. With respect to eating, travelling, or shopping, those ICTs help consumers work so efficiently and they provide consumers with new options including ordering food online, booking hotels, or purchasing products from online shops. The online-to-offline (O2O) transactions have played important parts for many businesses in China. For example, in the restaurant businesses, the online food ordering platform services allow customers and restaurants to interact. While the customers would have sent online orders to the restaurants, the restaurants would deliver the takeaways to the customers (He, Han, Cheng, Fan, & Dong, 2019). All the three participants which were the online platform services especially through mobile applications, the customers who used the mobile applications, and the restaurants/ hotels/ shops which used the mobile applications would benefit from these transactions. For the restaurants/ hotels/ shops, these markets provided new revenue sources without expanding seating capacity, hotel staff, or shop sale representatives. For the customers, these services offered various options, rating, reviews, and payment choices. For the online platforms, this business model produced steady stream of commissions (He, Han, Cheng, Fan, & Dong, 2019). The above advantages were the reasons why the O2O transactions in China were booming. According to iResearch, the value of China's O2O transactions had grown from US $335 million in 2015 to US $626 million in 2018 (Henriques, 2019). China has shown unstoppable growth in its economy and O2O has become a more popular term in the Chinese digital economy. Therefore, the online platform services especially through mobile applications have played an important role in this booming economy in China.

Dianping is an application to find local restaurants, hotels, and shops. It is used to search by GPS, provide shop phone numbers, addresses, maps, reviews, and coupons in seven major cities, including Beijing and Shanghai, in China. It is also used to check in to record and share for locally found food delivery services, consumer products, and retail services. Its reviews' rating was 3.8 out of 5 at Google Play store and it was installed by more than 1 million users as of 17 September 2019 (GooglePlay, 2019). Meituan-Dianping, a Chinese group buying website, has headquartered in Beijing and it was founded in 2010 by Wang Xing. The Meituan.com site offers deals of the day by selling vouchers on local services and entertainment. Meituan-Dianping is also one of the world's largest online and on-demand delivery platforms. It has over 290 million monthly active users and 600 million registered users as of April 2018 (wikipedia, 2019). Meituan-Dianping application has entered the Thai market since 2017 and has targeted Chinese tourists in Thailand with high purchasing power. Within 600 million registered users, 400 million users have been annual active buyers. The 71% of the users were white-collar and 16% were executives. Each user has spent around 6,000 yuan or around 30,000 baht per trip. Each user would pay on food around 1,500 baht per person per mean. The 93% of the users would travel more than 2 persons (MrsOK, 2019). Then, Dianping application was an interesting online platform service to investigate for the researchers of this research.

Haidian district is a district of the municipality of Beijing. It is 431 square km in area, making it the second-largest district in urban Beijing. It has around 2,240,124 inhabitants in 2000 Census; however, in comparison to other districts, a higher percentage of its inhabitants do not have the governmental residential certificates for long-term residence, because Haidian District is where most universities are located and therefore many of its inhabitants are college students (wikipedia, 2019a). In the last decade, Haidian has become Beijing's educational and technological center. It has a lot of Old Beijing, including the wonderful Summer Palace with its lakes and ancient pavilions (Fodor'sTravel, 2019). In Haidian district of Beijing, college students used the public comments from the Chinese applications to choose the specific locations for the restaurants. Interestingly, effective suggestions from Dianping application seemed to provide better services for those college students in Haidian district. Since Haidian district in Beijing has the largest number of universities and college students, the purpose of this study was to investigate factors affecting college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in china.

For literature review, a research on "*psychological factors influencing customers 'acceptance of smartphone dietapps when ordering food at restaurants"* was examined the adoption of smartphone diet apps by restaurant customers and the psychological factors that influenced their intention to use such apps when ordering food at restaurants. The data was collected from 395 users who downloaded MyFitnessPal, a free application. The results showed that the customers' *intention to use* smartphone diet apps was predicted by *performance expectancy* of the application, *effort expectancy, social influence,* and degree of *personal innovativeness* of the users. Following the Unified Theory of Acceptance and Use of Technology (UTAUT), this study proposed five determinants of mobile diet apps' *usage intentions* including *performance expectancy, effort expectancy, social influence, facilitating conditions*, and *personal innovativeness* (Okumus, Ali, Bilgihan, & Ozturk, 2018). Moreover, a research on "*a customer value perspective to service experiences in restaurants"* combined the customer – perceived value perspective with more traditional models of service/ restaurant experience using data from a large quantitative survey of 1,533 respondents. This prior research analyzed restaurant experiences through attributes especially *quality of the food* and paid attention to understand what kind of value customers perceived. The *quality of the food* was an inevitable part of the customer experience and was commonly addressed through perceptions of deliciousness and nutritional value, or through the aesthetics of the food (Yrjölä, Rintamäki, Saarijärvi, Joensuu, & Kulkarni, 2019). Traditional conceptualizations of the restaurant experience could be argued to be supply-oriented, as they focused attention on factors like *the quality of food* offered. However, the customer value in restaurants by incorporating the economic, functional, emotional, and symbolic values should be linked with *the quality of the food*, customer satisfaction, customer loyalty, and customer's Word-of-Mouth (WOM) as well (Yrjölä et al., 2019). Mobile food ordering apps (MFOAs) have been widely offered in the restaurant sector as innovative channels to reach customers and provide them with high-quality services. The researcher on "*mobile food ordering apps: an empirical study of the factors affecting customer e-satisfaction and continued intention to reuse"* the main factors predicting the e-satisfaction with MFOAs and customers' intention to reuse such apps in Jordan. This research proposed an integrated model based on the extended UTAUT and features of MFOAs such as *online review*, online rating, and online tracking. The main results supported the role of *online review*, online rating, online tracking, *performance expectancy*, hedonic motivation, and price value on e-satisfaction, and continued intention to reuse (Alalwan, 2019). Therefore, the researchers hypothesized that performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, quality of the food, and online review affected college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China.

2. Research Objective

Therefore, the researchers wanted to investigate the factors affecting college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China. The purpose of this research was:

(1) To investigate the factors affecting college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China.

3. Research Framework

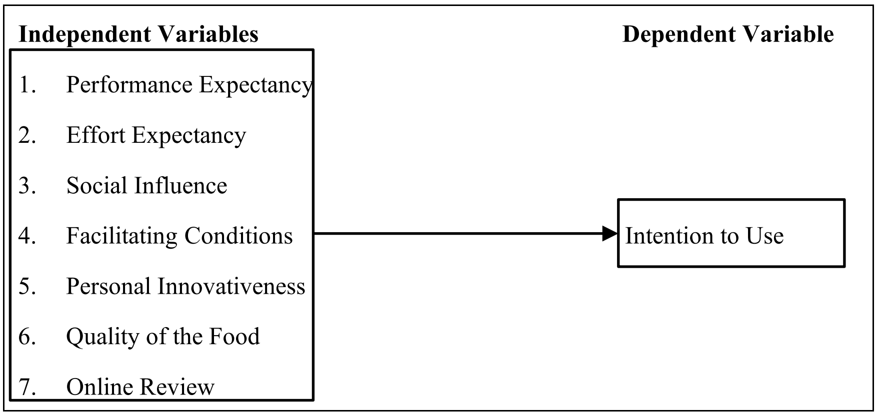

Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

This research applied the quantitative approach which included the survey method and the data collection was through questionnaires.

4.2 Population and Sample

The target population of this study were college students who had not used or may use "Dianping" application in Haidian district of Beijing in China. The sample size of this study was estimated according to Cohen's (1977) principle to determine the sample size of 40 pilot questionnaires. The sample size was then calculated using G*power version 3.1.9.2, a software created by Erdfelder, Faul, Buchner, & Lang and approved by Wiratchai (2012). The calculation was with the Power (1- β) of 0.85, Alpha (α) of 0.15, Number of Test Predictor of 7, Effect Size of 0.0622477 (Calculated by Partial R^2 of 0.0586). As the result of G*power calculation, the minimum number of the total sample size was 220 (Cohen, 1977). Therefore, the numbers of survey collection from participants were a total of 213 set of questionnaires.

4.3 Variable

H1: Performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, quality of the food, and online review had the effect towards college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China.

4.4 Research Instrument

The questionnaire was the instrument to examine related research theories from the past literatures and adapted to the conceptual model of this research. The finalized questionnaire had both English and Chinese versions with validation of the contents and agreement of wording adjustment from one expert in research field and two experts who were the managers of the Chinese restaurants' and the online platform services' businesses. The seven independent variables which were performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, quality of the food, and online review and one dependent variable which was intention to use were measured on a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree."

4.5 Data Collection

To ensure the effectiveness and accuracy of the study, the first researcher went back to in Haidian district of Beijing in China to collected data from college students around June of 2019. By means of random sampling, the dining places were selected and distributed in different major areas in Haidian district of Beijing in China, so the respondents from these areas were enough to represent most college students who might choose "Dianping" application.

4.6 Data Analysis

After collecting the data, the researchers analyzed the data by using SPSS/iOS statistics version 23, the Cronbach's Alpha Coefficient of each factor was computed and had result value between 0.882-0.899. All of alpha coefficient was passed the suggested level of 0.65 (Nunnally, 1978) and had proven to be reliable. Then, the analysis using descriptive statistic consisted of frequencies, percentages, means, standard deviations was implemented. The hypothesis testing was tested using Multiple Regression Analysis to analyze the influence of the seven independent variables (performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, quality of the food, and online review) towards one dependent variable (intention to use).

5. Research Findings

A total of 220 respondents were collected in this study. Based on the data analysis, most of the respondents were females with 54.59% slightly highly than males with 45.41%. Most of the respondents were between 24 to 29 years old with 41.92% and 18 to 23 years old with 36.24%. Most respondents were undergraduates with 79.91%. Most of them had monthly allowances around 4,001-5,000 yuan of 26.64% and 3,001-4,000 yuan of 21.83%. Most of the respondents might choose to use "Dianping" application for lunch around 36.68%. Most of the respondents of 39.74% might choose to use "Dianping" application because of seeing other people's reviews on restaurants. Most of them of 44.1% believed in comments and reference values from the online platform services. Most of the respondents of 31.44% might choose "Dianping" application to search for relevant information of restaurants.

In addition, based on hypothesis that performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, quality of the food, and online review had the effect towards college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China, the analysis results could be concluded that there was only *facilitating conditions* (β=0.436), *online review* (β=0.226), and *effort expectancy* (β=0.122) had respectively positive effect towards *intention to use* at statistically significant level of .05 as stated in Table 1. Moreover, the three independent variables were explained the positive impact on customer loyalty at 88.1%, while the rest at 11.9% could not be explained in this research's conceptual model. Also, the standard error was ±0.099 by the following equation;

Y (Intention to Use) = 0.054 + 0.436 (Facilitating Conditions) + 0.226 (Online Review) + 0.122 (Effort Expectancy)

Also, the result of Variance Inflation Factor (VIF) values of each independent variable were not exceeded by 10, which meant that there were no Multicollinearity (O'Brien, 2007).

Table 1 Multiple Regression Analysis

Dependent Variable : Intention to Use, R = 0.939, R^2 = 0.881, Constant(a) = 0.054					
Independent Variables	β	Std Error	T	Sig	VIF
(Constant)	.054	.099	.545	.586	
Performance Expectancy (PE)	.086	.062	1.400	.163	6.886
Effort Expectancy (EE)	.122*	.057	2.137	.034	6.048
Social Influence (SI)	.043	.056	.768	.443	6.675
Facilitating Conditions (FC)	.436*	.068	6.436	.000	8.312
Personal Innovativeness (PI)	.030	.052	.577	.565	5.440
Quality of the Food (QF)	.043	.058	.741	.459	6.970
Online Review (OR)	.226*	.066	3.408	.001	8.229

*significant level at the .05 level

6. Discussion

Based on the hypothesis that performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, quality of the food, and online review had the effect towards college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China, the researchers found that only *facilitating conditions, online review,* and *effort expectancy* had respectively positive effect towards *intention to use* at 88.1%. The results supported the previous research that *facilitating conditions* and *effort expectancy* positively affected the customers' *intention to use* smartphone diet apps like MyFitnessPal

(Okumus et al., 2018). The results of this research also extended the Unified Theory of Acceptance and Use of Technology (UTAUT) that facilitating conditions and effort expectancy positively affected the customers' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China. Moreover, the results of this research supported the research on "*mobile food ordering apps: an empirical study of the factors affecting customer e-satisfaction and continued intention to reuse*" the apps in Jordan (Alalwan, 2019). This research proposed an integrated model based on the extended UTAUT and features of MFOAs such as online review of the college students' intention to use "Dianping" application to choose restaurants in Haidian district of Beijing in China. However, the results were not confirmed that *performance expectancy*, *social influence, personal innovativeness*, and *quality of the food* had the effect towards college students' *intention to use* "Dianping" application to choose restaurants in Haidian district of Beijing in China. These might be because "Dianping" application did not include enough features to support such factors.

7. Suggestion

For managerial implication, the results of this research may help "Dianping" application's developers, owners, or marketers to expand it users by emphasizing on *facilitating conditions, online review*, and *effort expectancy* in order to recruit more new users to use the application. The application's developers, owners, or marketers should also improve its features on *performance expectancy, social influence, personal innovativeness,* and *quality of the food* through the use of the application. Future research could examine how disconfirmation, genders, or ethnic groups may have negative or positive effect toward intention to use, usage behavior, or e-satisfaction of college students to use "Dianping" application to choose restaurants in Haidian district of Beijing in China. A longitudinal study can be performed to see the impact of the shift in facilitating conditions, online review, and effort expectancy on intention to use of the users over time.

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THERAVADA BUDDHIST TEACHINGS AND THE PARANORMAL TELEVISION SHOW *KHON-UAT-PHI*

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ABSTRACT

This study, *Theravada Buddhist teachings and the Paranormal Television Show Khon- Uat- Phi*, examines 1) Buddhist teachings represented through the show, and 2) viewers' perceptions and opinions on the meaning of Buddhist teachings in the programme. It adopts qualitative research methods, including textual analysis of the television texts, and focus-group interviews with the television audiences. The body of knowledge contributed in this study demonstrates that the show plays an important role in circulating the teaching of the *Law of Kamma* through a presentation of interesting guests' cases displayed in the first section of the show *sun-ban-thao-thuk-phi*. The results of this study indicate that the show has an emphasis on evil kamma, including 1) kamma occurred as a result of suicide, 2) of murder, 3) of using black magic, and 4) of other religious misdeeds. Additionally, the results of the focus groups demonstrate that all participants understand the Buddhist teaching of the *Law of Kamma* displayed in the show, but they have different opinions after watching the show. That is, the participants from a rural background are afraid of evil kamma while the others are not. This can be as a result of the proximity of Buddhist cultural background.

Keywords: paranormal television show, *khon-uat-phi*, Kamma, beliefs, ghosts and spirits, Buddhism

1. Introduction

Social beliefs about ghosts and spirits can be considered as a part of Thai culture as they are in relation Buddhist teachings which "have been deep-rooted in minds of Thais" (Panyasophon, 2003, p. 96). Also, they are popular in mass media products, especially television shows (Kitiarsa, 2012; Roekphuengdee & Thonglert, 2019). According to an annual report published by Office of The National Broadcasting and Telecommunications Commission (2018), the show *khon-uat-phi* has been on-air approximate nine years continually, and has still been popular amongst viewers. Throughout being on-air, there have been some reports from viewers regarding deceptive contents, especially several guests' cases presented in the section of *sun-ban-thao-thuk-phi* (Khaosod, 2016) in which critics note that the cases have been debunked and been useless for audiences. However, this study arguably suggests that the show functions as an emphasis on the concept of Kamma in Theravada Buddhism. Throughout this study, I shall call a Buddhist teaching which stands for a lesson recorded in Theravada Buddhism. Based on my review of the literature, this kind of the study is limited to four areas: 1) a construction of fear used in the show, 2) a study of forms and formats, 3) an issue of gender studies, and 4) a study of language. In other words, this is a gap in terms of investigating Buddhist elements represented in the show. As such, this paper will examine what Buddhist principles are included in the show and how audiences understand the teachings promoted by the programme.

2. Research Objectives

(1) To examine Buddhist teachings represented through the television programme *khon-uat-phi*

(2) To analyse viewers' perceptions and opinions on the meaning of Buddhist teachings in the show

3. Research Methodology

3.1 Research Design

This study focuses on a representation of a Buddhist teaching shown in Thai supernatural television programme titled *khon-uat-phi*. This paper suggests that the beliefs represented in the show reflect a Buddhist teaching. Thus, it tries to figure out what the main purpose of the show is. It adopts qualitative research methods to achieve the research objectives: 1) textual analysis of the television texts in relation to a Buddhist teaching and 2) focus-group interviews with the television audiences.

3.2 Population and Sample

As for conducting the textual analysis, the show telecasted from January to September 2019 was analysed. There were 39 episodes in total. All episodes were watched and were analysed in detail. That is, this method consisted of two procedures: 1) using content analysis in categorising data falling into each classified group, and 2) using textual analysis to interpret the television texts in terms of not only verbal language but also fixed and moving representations in the show. To access the sample, the programme can be watched through the television channel named *Workpoint*, the official website https://www.workpointtv.com, the YouTube channel *WorkpointOfficial* and the mobile application called "Line TV". The key benefit of this analysis is to examine what Buddhist teachings in the programme are and how they are represented.

Focus groups were employed as a research instrument in addressing how viewers understand television texts and how they interpret meaning in the texts. Participants in this study were recruited through online advertising on social media networks. Also, I used the technique of *snowball sampling* to find more participants by asking sampled participants to recommend other people. The focus group participants were divided into two groups, each consisting of six people. There were four criteria to recruit participants: 1) people who hold Thai nationally, 2) people who have had Buddhist knowledge, 3) people who are over the age of 18, and 4) people who have watched the show *khon-uat-phi*. The participants were twelve Thais divided into two main groups: 1) six people who have mainly spent their time in urban areas, and 2) six people who have mainly spent their time in rural areas. Once the recruitment was completed, details of the focus groups meeting were circulated through personal emails and phone calls.

4. Research Findings and Discussions

4.1 Features of the show

Thai supernatural television show titled *khon-uat-phi,* which is broadcasted and managed by Workpoint Entertainment Public Company Limited (or the 23rd channel) and is a ghost-variety show being on-air at 10.00 p.m. to 11.30 p.m. (approximately 1.5 hours), is divided into three sections: 1) ghostly therapy called *sun-ban-thao-thuk-phi* – the first section that invites people, who are suffering from ghost haunting, bereavement, and mental trauma, to get a treatment through talking cure with the host named Riw, 2) ghostly hunting called *la-tha-phi* – the second section that invites celebrities/guests to complete ghostly missions at haunted places, and 3) ghostly experience called *pra-sop-kan-khon-hua-luk* – the third section that invites superstars to share their mysterious experience with hosts. The first section of the show is focused, whereas the others are not analysed because of unsuitable for the research objectives in this study.

4.2 Title of the show

It can be suggested that the title of the show *khon-uat-phi* has a meaning in relation a Buddhist message. The title is literally divided into three words: 1) *khon* is a noun standing for humans, 2) *uat* is a verb standing for showing something to someone, and 3) *phi* is a noun referring to ghosts. *Khon-uat-phi* means people, who are invited and/or are seen in the show, are going to share their ghostly experience e.g. to communicate with ghosts, to do a ghost hunting at haunted places, to share their opinions in dealing with ghosts and spirits. In other words, the programme tries to present beliefs in ghosts and spirits through guests' and hosts' experience in their everyday lives. Realities and texts in everyday life have several meanings which are based on people's interpretation. They are called "myth". Barthes (1993, p. 109) claims that "myth is a system of communication, that it is a message. … since myth is a type of speech, everything can be myth, provides it conveyed by a discourse". In other words, myth is a type of communication which signifies a meaning more than a literal reading of the original message. He calls it as "second-order semiological system" which depends on sociocultural contexts. In the same way, it is possible that *khon-uat-phi* is read and deciphered through Thai context where the majority of people in Thailand is Buddhism (National Statistical Office, 2018). As such, the show is interpreted as a way of doing good things, called *bun* in Thai or *puñña* in Pali. Throughout this study, I shall call it *bun*. That is, *bun* is "merit-making acts e.g. preaching the Precept Five on basic morality, focusing on monastic affairs, and construction of monastic buildings" (Mailkhao, 2017, p. 6). Also, it includes a way to persuade Buddhists to avoid sin through learning religious misdeed from others (Hoare, 2004). As such, people, who watch and apply Buddhist messages promoted by the show in their daily lives, are going to do merit-making acts instead of doing evil things.

Focusing on meaning of the title deciphered by audiences, all of the focus group participants believed that *bun* was created by humans only through praying, listening to sermons, donating something to help monasteries, whereas it was not created by inhuman beings, such as ghosts and spirits. The majority of the participants suggested that ghosts, which were described in Buddhist texts, were souls of deceased people which were not be able to do a merit-making by completing Buddhist activities because they were no longer physical bodies. As a result, *bun,* which used to be created when they had been humans, was limited. When they died, they are sent in hell to be punished according to their sin in Buddhism. Participants added that *bun* is the only way to reduce pain from karmic punishments. One of the participants stated that "Buddhists should do merit-making acts before being late, should watch the show in order to be case studies or examples in realising karmic punishments, and also should not be a guest in the programme to show their sin". Additionally, the main opinion of the groups indicates that the meaning of *khon-uat-phi* has a connotation to convey a questioning quote: have you had merit-making acts yet. If not, please do suddenly.

4.3 Buddhist teachings represented in the show

The data gained from textual analysis illustrate that there is only the section titled *sun-ban-thao-thuk-phi* which includes a Buddhist teaching, whereas the others are not the case. The key message contained in the section is the concept of kamma or karma in Sanskrit. According to Humphereys (1969, p. 82), kamma has three meanings: "1) action; 2) action-reaction as an inseparable unit, and 3) the results of reaction, in the sense of resultant of a long series of acts by an individual group". As for the belief in kamma in Thailand, it is mainly divided into two types which are merit and sin. Buddhist Thais view kamma as a collection of good and evil kamma from the past to the future (Engle, 2005). Results of kamma will be returned to their lives in an inescapable cycle called the *Law of Kamma* (Humphereys, 1969). Additionally, the *Law of Kamma* suggests that the condition of life after death is a result of the immoral/moral behaviour of people when they were alive (Kirsch, 1977). For this study, the results of the analysis show that the Buddhist teaching of evil kamma is highlighted clearly. In particular, it is explained by the host named Riw in the section of *sun-ban-thao-thuk-phi* and is also repeated at the end of the show again. This study analysed 39 episodes of the show. The results of the analysis illustrate that 26 episodes of the show are an emphasis on the Buddhist teaching of *Law of Kamma*, in particular bad kamma, while the rest are a presentation of other things. The details of research findings are shown in Table 1.

Table 1: Key contents represented in the section of *sun-ban-thao-thuk-phi*

Description			Number of episodes	Percentage
Evil kamma	which occurred as the result of	1) being suicide	8	20.51
		2) being murder	7	17.94
		3) using black magic	6	15.39
		4) doing other misdeeds	5	12.82
The section	which was the presentation of	1) having mental illness	5	12.82
		2) having accidents	5	12.82
		3) Thai traditional beliefs	3	7.70
Total			39	100.00

Firstly, evil kamma occurred as a result of suicide is mostly represented in the section of *sun-ban-thao-thuk-phi*. It is always narrated by a conversation between television hosts and invited guests. Opening this section with three male hosts, guests who have had the unpleasant feeling as the result of seeing souls of deceased people or being haunted by ghosts are invited in a television studio. Then, the hosts allow them to describe what and how their problems are before the male host named Riw starts outlining solutions to those problems. Riw is the sixth sense host which is represented and treated as a person who can communicate with souls of dead people or ghosts by looking at or touching something, reading guests' names and/or numbers in their lives (e.g. home addresses, vehicle registration plates, and so on). He tries to relieve their pain through the use of a therapeutic technique like the "empty area"; that is, a conversation between guests and souls of deceased people imaginatively assumed as existing in an empty area. After that, he always seeks solutions for them and generally closes the cases with the concept of kamma in Buddhism. In this sense, suicide is the Buddhist prohibition and is underlined by Riw. The interesting point is that the suicidal cases consulted by Riw always end with the description of 1) a difficult situation in life after death, 2) tortured punishments in Buddhism, and 3) persuading audiences to avoid the act of killing themselves. One of the examples is that Riw speaks to guests in the sense that "people who try to or commit suicide need to be severely punished in hell". This is similar to Buddhist doctrines cited in Disayavanish and Disayavanish (2007, p. 1684) explaining that "any person who makes a suicide attempt… is bound to be reborn in the realm of hell (Niraya)". Also, "they can [not] escape from the whips and scorns of time by suicide" (Humphereys, 1969, p. 97).

Secondly, attempts and/or acts of murdering living things are also Buddhist forbidden and are included in one of the Five Percepts in Buddhism. As for several cases displayed in the section of *sun-ban-thao-thuk-phi*, the data gained from the analysis indicate that the crime of killing somebody deliberately is represented. The key point of this is that Riw needs viewers to be afraid of the karmic cycle in the sense that murderers have to be sentenced to death or life imprisonment in prison; they also need to redeem their sins in hell. The show tries to broadcast a message to warn people who are planning to harm or kill others to stop by drawing both legal and heavy karmic punishments. In short, the punishments promoted by the show are employed as a tool in reducing or restraining acts of murder in society, more or less. The outstanding example is the case which is on-air in April 10th. After a male guest which met the hosts and explained a past occurrence regarding the murder of his wife, he wanted to meet Riw and asked how about his wife was. Riw stated that "the male murderer who kills your wife must get heavy karmic punishments definitely, as he is a sinner who cannot escape from the cycle of kamma". At the end of this episode, Riw also comments that criminals have to get their karmic punishments without exceptions. This quote is similar to the Buddhist lesson stating: "…when you murder someone…, you carry a heavy karmic debt and take on that person's karma as well. … You will have to reincarnate with the soul you have murdered to help them finish what you cut short. In another life, you will have to go through the experience of being murdered yourself to understand what it feels like to have your life cut short" (Martin & Moraitis, 2010, p. 115).

Thirdly, acts and/or activities involving with black magic are prohibited in Buddhist prohibition. Thai people call this *sai-ya-sat*, as Sahatumno (2011, p. 1) suggests that it is "a subject which leads to a failure in understanding Buddhist principles and leads to a creation of sin". Throughout the section of *sun-ban-thao-thuk-phi*, the results of the analysis illustrate that black magic involving with love is mostly shown through many guests' cases such as getting and taking care of scared objects, participating in black-magic ceremonies, and attempting to harm people with black magic. A clear example of this is found in the episode being on-air in February 27th. A female guest came to the show and asked Riw about why she did not usually have success in love. In particular, she often had serious arguments with her boyfriend. In addition to that, she confessed to Riw in the sense that she has got a scared object *i-poe* (like a female small wooden doll with sexual posture) from her older sister unintentionally. As a result, she has seen apparitions and has had experience in uncanny feeling since then. Riw believes that any kinds of black-magic/scared objects are part of creating unforgivable sin in which Buddhists should not get involved. He also advises her to return it to the sister or to destroy it according to Buddhist custom. This is similar to the Buddhist scripture called *Tripitaka*, the section of 814 states: "…any forms of the magical issue are useless. Good behaviour in relation to good kamma is the truth" (Sutta Pitaka, 2000).

Fourthly, there are a few cases in the section of *sun-ban-thao-thuk-phi* representing evil kamma occurred as a result of committing other sins e.g. to attack spirits inside Spirit House (called *san-phra-phum*), to cut down holy high and tall trees, to go against moral precepts recorded in Buddhist scriptures, and so forth. Those are the exploitation of other living creatures and the creation of bad kamma. At the end of the show in many episodes, the host Riw draws a conclusion in the sense that any acts of exploiting people or living creatures lead to an act of entering a cycle of kamma. He also stresses that "if you do good things, good things will happen to you. If you do bad things, bad things will happen to you". The Riw's quote is similar to the concept of kamma which is narrated through the Buddhist story: "the kind of seed sown will produce that kind of fruit. Those who do good will reap good results. Those who do evil will reap evil results. If you carefully plant a good seed, you will joyfully gather good fruit" (Low, 2018, p. 167).

Apart from Buddhist teachings represented in the section of *sun-ban-thao-thuk-phi* as mentioned above, there are few episodes which do not present the teaching visually. The data gain from the analysis demonstrate that all episodes do not force viewers to have beliefs in extraordinary things, but they try to suggest them to prove it with scientific methods instead. A clear example of this is found in the episode being on-air in February 6th. During an interview between the hosts and the female guest, the guest suddenly showed herself unusual, that was, her body and voice were trembling with fear of something. She looked at an empty space and turned back to the hosts with aggressive eyesight. After that, she spoke to the hosts with a loud tone of voice without a clue. In addition to that, her voice sounded like a man. Taking a while, the guests were back to be normal behaviour because she took deep breaths (according to Riw's suggestions) to calm herself down. At the end of this section, the show attempts to explain how she was, and what her symptom was by interviewing with general practitioners and psychiatrists. The case above is not only the one, but there are many invited guests showing themselves like that in which the show mostly ends with medical and scientific viewpoints suggested by professionals. Although this kind of the episode do not highlight Buddhist teachings, Riw still recommends viewers to do good things, to follow Buddhist teachings, and to participate in Buddhist rituals and ceremonies.

4.4 Buddhist teachings and audiences' perspectives

The data gained from the focus-group interviews indicate that there is no different regarding reading television texts represented in the programme. That is, all participants suggest that the section of *sun-ban-thao-thuk-phi* displays and highlight the Buddhist teaching of the *Law of Kamma* while the others are not. During the interviews, they revealed that they understood the teaching through a combination of 1) conversation between Riw and guests in the first section of the show, and 2) summaries made by Riw at the end of each episode. The following paragraph will discuss the reason why all of them recognise the teaching through the arguments of Anthony Smith and Benedict Anderson as follows.

All the participants understand the teaching of the *Law of Kamma* represented in the show because they are of Thai ethnicity in which Buddhist knowledge have been shared and passed on for generations. As Smith (1986, p. 200) claims, ethnicity is considered as an important factor in building, maintaining, and circulating a nation identity within a community where it can be a "nation-building". That is, people share their conventions together, such as traditions, culture, social regulations, and government policies, in this way, a nation is built by ethnicity through a sense of "connected to a homeland, possessing common myths of ancestry, shared memories…" (Smith, 2010, p. 13). In other words, ethnicity plays a significant role in shaping collective knowledge and ideology within a society. This concept is used as the framework in exploring the findings in the sense that the teaching is central to Thai ethnicity. As for the interviews with the focus groups, I asked them *'how did you know the teaching presented in the show?'*. All participants noted that they had learnt them from older family members, such as parents and relatives. They suggested that their parents were their first sources of Buddhist knowledge. One of them said: "*it's easy to understand the message represented in the show, because my mom always persuades me to read Buddhist texts and to attend Buddhist ceremonies when I was a child*".

Additionally, Anderson (2006) suggests that education system is an important factor in shaping national core values and the creation of a national identity, especially learning through mass education – classes which are sponsored by government and can be accessed by everyone. Anderson (2006, p. 122) adds that one of the many ways to enhance a national identity is to starts with young students so that "they still had read the same books and done the same sums". In other words, this form of education system can lead to the building and maintaining of national core value, tradition, culture, identity, and so forth. This concept is similar to my findings in the sense that the participants employ their Buddhist knowledge learnt from educational institutions (when they were children) to interpret television texts in the show. The majority of the participants added that one of the many reasons in understanding the teaching was because they used to learn Buddhist teaching in school. They call the subject *wicha-phra-phuttha-satsana* (religious education). As one of them stated: "*I had learnt many Buddhist teachings when I was young. So, the Karmic Law presented in the show is not different to understand*".

However, there is a difference between the participants in both focus groups regarding their feelings after watching the section of *sun-ban-thao-thuk-phi*, in particular, emotions of fear and worry. That is, the results of the analysis illustrate that the majority of the rural participants is afraid of afterlife in relation to evil kamma and is aware of karmic punishments in hell described the host Riw, while all urban participants do not mention the consequences like above but they are anxious about dealing with unpleasant events (e.g. to be killed by someone, to have dreadful accidents, and so forth) to occur in their lives. During the focus-group interviews, I asked all participants to co-operate and arrange three feelings/things after watching the show in which the data are shown in Table 2.

Table 2: Three rankings voted by two groups of the participants

Group 1: the urban participants	Group 2: the rural participants
Rank 1: be afraid of unpleasant events happening in their lives and family members	Rank 1: be afraid of afterlife in relation to evil kamma
Rank 2: no fear of kamma because it is Thai myths	Rank 2: be aware of karmic punishments in hell
Rank 3: no fear of kamma because there is no proof	Rank 3: doing *bun* instead of *bap*

The results of the analysis show that the rural participants are aware of evil kamma while the urban participants are not. It is possible that the rural participants been supported by their rural communities where there are a large number of Buddhist learning places. One of the rural participants stated that "*the Buddhist temples near my parents' house were my primary and second schools where I had learnt a lot of Buddhist principles from the abbot, especially thum-bun* [merit-making] *instead of thum-bap* [sin-making]". This indicates that the rural areas play a meaningful role in cultivating lessons in Buddhism. This can be explained through the concept of Social Construction of Reality. Berger and Luckmann (1966) explain that everyone has a different knowledge and experience which learn from their cultural background, local areas, educational system, interests, and so on. However, they have shared some knowledge in a society, such as social norms, religions, and government rules, what he calls "stock of knowledge". Especially, the stock of knowledge is built by "general and imprecise information on remote sectors" (Berger & Luckmann, 1966, p. 57). For this reason, the participants from a rural background are more likely to be aware of evil kamma because they are closer to Buddhism than the participants from an urban background.

5. Conclusion

It can be argued that several guests' cases presented in the programme *khon-uat-phi* are displayed as interesting stories which are based on true stories in order to attach audiences to pay attention with but the key is that it plays a meaningful role in installing and cultivating the appropriate Buddhist teaching. In particular, the first section *sun-ban-thao-thuk-phi* attempts to circulate and provide the teachings for not only invited guests at the studio but also audiences at home. In addition to the main point of this, the cases carry a message in warning people who try to and are going to commit a sin to stop, more and less. The Buddhist teaching, in this sense, is considered as a stock of knowledge amongst Thais in which it functions as a sociomoral tool in enhancing them to do good instead of evil kamma. This is similar to the key argument of Kitiarsa (2012) which notes that mass media products function as weaving threads in the globalisation in which they are going to broadcast popular culture rooted in their communities with a great impact.

6. Suggestion

(1) It would be good if the next study can access the producers of the programme *khon-uat-phi* to examine the reason why the promotion of the Buddhist teaching is included.

(2) There are many Thai supernatural television shows in Thailand which are rarely examined, including television ghost dramas, radio supernatural shows, both of which are popular in Thai media industry and with audiences.

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EXPLORING THE SEFULNESS OF MOBILE ASSISTED LANGUAGE LEARNING IN ENHANCING ENGLISH VOCABULARY ACQUISITION OF FIRST-YEAR STUDENTS AT SRIPATUM UNIVERSITY

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ABSTRACT

This study is aimed at Exploring the usefulness of Mobile Assisted Language Learning in enhancing English vocabulary acquisition of First-year students at Sripatum University as a 21st Century learning tool in the classroom. The main objectives are (1) to investigate how first-year students use their mobile devices as tools in English vocabulary learning, (2) to identify the Mobile devices applications that the students use in English vocabulary acquisition; and finally (3) to compare students' vocabulary knowledge after using MALL through Pre-test and Post-test.

Data for this study were collected by means of various research instruments: Survey questionnaire, face to face interview/assessment, and Pre and Post-test. The primary findings of this research are that MALL has positively influenced students attitude and scores when it comes to English vocabulary acquisition. Mall approach has not only improved their vocabulary knowledge but also motivated students in language learning. In addition to this, the analysis reveals that mobile learning is considered by the participants as a useful way of learning as it is convenient, portable and effective. However, there were also some challenges faced in this study. Nevertheless, mobile devices which are popular among students are motivational tools to be used in education as well as various learning activities in the future.

Keywords : mobile assisted language learning (MALL), computer assisted language learning learning(CALL), vocabulary acquisition

Introduction

The invention of the computer and the Internet was one of the most significant influences in education. The Computer-Assisted Language Learning approach, also called CALL, introduced a modern approach to teaching and learning. It provided endless opportunities for students and educators alike by breaking their dependence on the limited conditions where they can only study in a classroom environment, or on resource books and other teaching settings that only teachers can provide. CALL first made teaching more vivid by providing audio and video media. So, in addition to class lectures students can learn more by watching videos of native speakers and listen to their interaction. Furthermore, it allowed students more time to work on their own catering individualized learning. The differences in learning styles, language skills, pacing and learning schedules can easily be accommodated through CALL. Integrating technology in traditional teaching situation also help solve the classic educator problems like capturing student attention, maintaining student interest, holding focus and increasing engagement. Educators can certainly benefit from the great variety of interactive activities, games, stories, songs that make language learning not only painless but also fun. Today there are a number of CALL programs and courses that are available in the Internet with prices varying from free to expensive and others are available through university language courses.

With the evolution of CALL, the transfer of computer functions to mobile devices like smartphones and tablets opens up a new approach in the field of language teaching and learning: MALL or Mobile-Assisted Language Learning. MALL differs from CALL in its use of personal portable devices that make learning even more accessible anytime and anywhere. It is also worth mentioning that one of the important sources that CALL and MALL provides is, of course, the Internet which offers an unlimited amount of information from audio and video recorded materials, podcasts, electronic books, songs, etc.

As an offspring of CALL, MALL is deemed as an effective medium largely due to the availability and accessibility of smartphones. More and more Mobile-Assisted Language Learning applications related to language learning are emerging and accessible. Since mobile devices has now become a part of our daily lives, learning can be both a formal or informal way of learning. It can also bridge students and learning in or out of class. The importance of vocabulary acquisition in foreign language learning is of tremendous importance which MALL can greatly provide to student learners.

Literature Review

Mobile-Assisted Language Learning

In recent years, the world has witnessed an explosion in the growth of mobile learning across various branches of education. Mobile-assisted Language Learning describes an approach to language learning that is assisted through the use of handheld or palmtop technologies (Valarmathi, 2011). MALL is any type of language learning with the use of portable devices such as PDAs, smartphones, ipads, tablet, smart watch or any handheld devices which are used for: : voice calling, making short messages, video chat, listening to audio MP3, MP4, Mpeg, web surfing, shopping, electronic dictionaries etc. (Kukulska-Hulme & Shield, 2008) In this respect, mobile learning refers to the use of mobile devices as an educational tool to access learning materials at any time and everywhere.

There are growing research on the area of mobile learning which indicates the increasing use of mobile technologies for learning and teaching practices. MALL offers various ways to access any learning material and to interact with teachers and classmates that transcend time and place. With the growing applications incorporating mobile technology have also been attempted in the subject of foreign language learning and English language learning (Kukulska-Hulme & Traxler, 2005). Various studies (e.g. Ally, 2009; Dias, 2002; Dickey, 2001) have shown an explosion of interest in using mobile devices for English language teaching and learning. Mobile devices have some characteristics which allow them to be suitable tools for modern education, especially in terms of providing exploring and sharing learning contents. The characteristics can be summarized as portability, functionality, ubiquity, utility and connectivity (Pachler et al., 2010).

Research Objectives

This paper aims:

1. To investigate how first-year students use their mobile devices as tools in English learning.

2. To identify the applications of the mobile devices that the student uses in English vocabulary acquisition.

3. To compare students' pre-learning and post-learning vocabulary knowledge scores after using MALL devices.

Methods (Sampling, Collecting Data, Measures)

In order to answer the research questions stated earlier, the data needed was collected by three means. For the first question; How do first-year students of Eng 213 use their mobile devices as English vocabulary learning tools? A combination of face to face assessment and survey questionnaire were done in order to collect this data. For the second question: What are some applications that students use in the classroom? A survey questionnaire was used to collect data from ENG 213 students. Lastly, pre-test and post-test were administered to ENG 213 first-year students to compare the scores before and after using MALL.

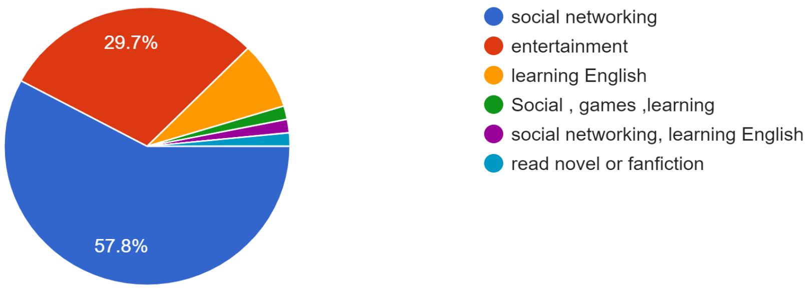
The contents of the ENG 213 Course were used with the addition of MALL as a teaching technique. According to the 2018 term 3 curricula, the Reading explorer by National Geographic was used as the reading material topic from Units 1-4. A MALL approach was then developed in accordance with the topic of each unit. During class, the researcher will introduce the topic through lectures and a series of targeted questions. The pre-test will be administered before the formal lesson starts. Learners use their mobile devices during the reading passages as additional learning tools. For each unit, students will have to produce a vocabulary notebook; searching for the meaning, synonyms, antonyms, pronunciations, Thai translation and sample sentences. In this activity, students will use MALL approach and a series of mobile application such as; Line app, Merriam-Webster Dictionary, Google Translate, and TH-EN translation.

The population for this research were first-year students enrolled in ENG 213 Course: Vocabulary and Reading in semester 3 of the 2018 academic year. There are 18 sections in total with a population of 800. The ENG 213 Course aims to help students practice reading strategies to effectively comprehend textbooks, articles, and academic documents.

Based on the purposive sampling technique, a hundred and ten (110) students were chosen for this study at Sripatum University. The selection of this sample was based on the fact that those two selected sections do not have an official vocabulary course, therefore it is expected that the participants would rely on sources like digital devices to learn vocabulary.

Results

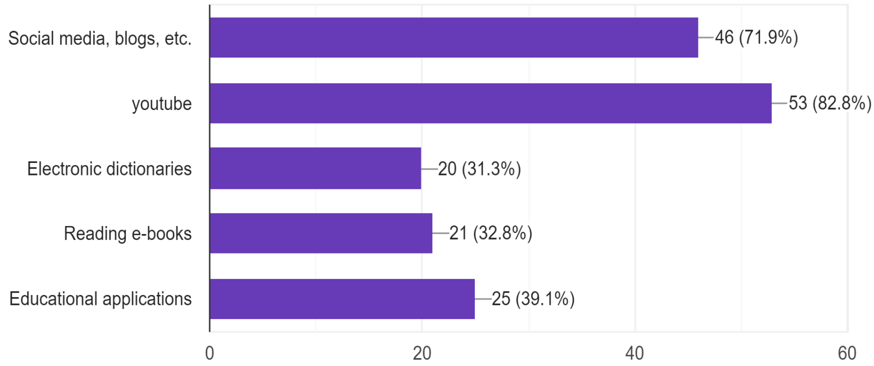
This part is to present the results of the study; the findings are carefully discussed in order to address the research objectives and answer the research questions. The **first objective** focused upon investigating on how first-year students use their mobile devices as tools in English learning which was achieved through survey questionnaire and face to face assessment of the students. Graph 1 and 2 show the results of the survey questionnaire:



Graph 1

What kind of activities do you often use with your mobile device?

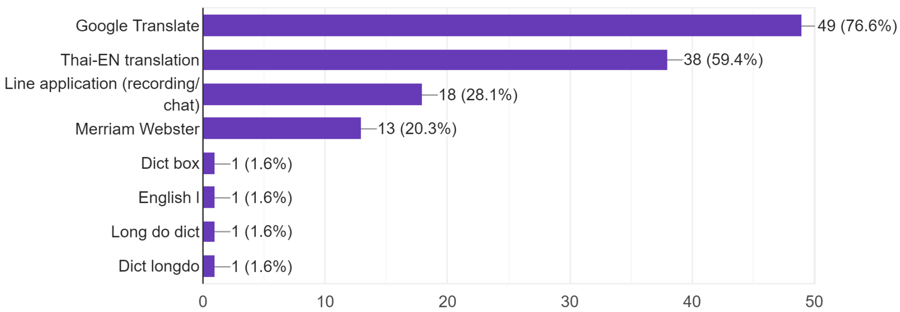
It can be As seen from graph 57.8 % of the respondents use their mobile devices in social networking activities, 29.7% on entertainment, 7.8 % on learning English, 1.6% each on games, reading fan fiction and novels .



Graph 2

Would you specify examples of the activities? (Check all applicable answers)

In graph 2 furthers investigate how the participants use their mobile device for English vocabulary acquisition. As seen in the graph, Youtube is the most popular response with 82.8%, coming in second is social media, blogs, twitter, pinterest with 71.9%, while ebooks response is 32.8% and other educational applications (i.e. Duolingo, easybib, EasySay) with 39.1% and lastly Electronic dictionaries 31.3%.



Graph 3

what applications do you usually use when studying English? (you can check more than 1)

In graph 3, it addresses the **second objective:** to explore the basic applications that the student uses in English vocabulary acquisition. As illustrated, there are four main applications that the respondents use in vocabulary acquisition. The results showed that Google translate is the main apps that students use with 76.6%, followed by TH-EN translator app 59.4%, Line app coming in third with 20.3% and Merriam-Webster dictionary with 20.3%. The other four applications which are Dict Box, English, LongDo dictionary, dict Long Do are other types of online dictionary app with 1.6% each.

Table 1 and 2 demonstrate the pre- and post-test results and answers the **third objective:** to compare if the use of MALL on their mobile devices has improved their vocabulary knowledge using the pre-test and post-test scores. A pretest was prepared to examine the participants' actual reading practices before introducing the mobile features and applications in this study. The 15 items pretest was administered before the start of the lesson. The pretest itself was divided into two parts, part 1 finding out the correct vocabulary using context clues and part 2 is matching vocabulary with their definitions. After 2 weeks, the post test was done to see if the students retained any of the vocabulary from previous lesson.

Table 1

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-Unit1	11.1727	110	2.68827	.25632
	Pre-Uniit1	7.9727	110	2.94743	.28103

Table 1 shows the result from the pre- and post-test on Unit 1. The paired *t*-test was used to test if there was a significant difference in the means of the two tests. In the Paired Samples Statistics Box, the mean for the post test is 11.1727. The mean for the pretest is 7.9727. The standard deviation for the post test is 2.68827 and for the pretest is 2.94743. The number of participants in each condition (N) is 110.

There was a significant difference between the pre-test and post-test mean scores (t_{109} = 14.262, $p < 0.001$). On average, Post test scores were 3.2 points higher than pre test scores (95% CI [2.75531, 3.64469])

Table 2

Unit2

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-Unit2	12.0636	110	2.01498	.19212
	Pre-Uniit2	8.3182	110	1.99509	.19022

Table 2 shows the result from the pre- and post-test of Unit 2. In the Paired Samples Statistics Box, the mean for the post test is 12.0636. The mean for the pretest is 8.3182. Both are higher than in unit 1.

The standard deviation for the post test is 2.01498 and for the pretest is 1.99509. The number of participants in each condition (N) is 110.

There was a significant difference between the pre-test and post-test mean scores in Unit 2 scores (t_{109} = 18.781, $p < 0.001$). On average, Post test scores were 3.7 points higher than pre test scores (95% CI [35019,4.14072)

Together, these graphs suggest that the participants get higher scores after the Mobile assisted language learning approach was done. They were still able to score significantly higher even after the two weeks gap from the pre- to post-test.

Summary

The findings revealed the positive result of exploring the usefulness of Mobile Assisted Language Learning in enhancing English vocabulary of first-year students at Sripatum University. The usefulness of MALL in vocabulary learning was indicated as having a positive impact on students' achievement in English as it assists the students in different activities. It was also found that students have a positive attitude towards MALL and are willing to use mobile devices in the future.

Three research questions were developed for this study. A summary of the results are as follows:

Research Question 1: <u>How do students at Sripatum University use their mobile devices as tools in English vocabulary learning?</u>

The first question is focused upon understanding the students' mobile usage habit and the applications that they use in English vocabulary acquisition. This was attained through a survey questionnaire and a face-to-face assessment with the first year students of Sripatum University. Two questions were specifically analyzed for this result. The first question, students were asked about their usual mobile habit (Graph 1). The second was how they use their mobile device when studying English vocabulary (Graph 2). **In graph 1**, it has been revealed that majority of the students use their mobile devices for social networking sites (i.e. Facebook, instagram, twitter) then followed by entertainment (i.e. YouTube videos, reading novels, fan fiction, watching animation), not many would use their mobile devices for learning English vocabulary on their free time. However with the second question, participants were asked to further explain how their devices have helped them specifically with vocabulary acquisition, YouTube is the most popular response with 82.8%. These students revealed that they watch English speaking videos, funny commentators and listen to music, therefore acquiring some English vocabulary when using the site/app. This result implies that the participants are more inclined to use applications that can be both entertaining first and educational second hence the popular choice of YouTube.

Research Question 2: <u>What are the MALL applications that students use in their acquisition of English vocabulary?</u>

Participants were asked to identify how they use their devices when specifically learning English Vocabulary, there are five main application that the participants declared: the top result is Google translate, google being one of the most popular search engines, it comes as no surprise how students are more inclined to use it as a translation application. Google is easy to use with different features to choose from. The second application is Thai-EN translation, this acts as an instant messaging app that translates conversations in real-time, third result is Line application itself, And finally is the online dictionary application, which students use for quick reference. Most of the dictionary apps are still accessible offline which can be one of the reasons why participants use them even with the google translate app. The second result suggests that participants prefer using the direct translation app from THAI to ENGLISH rather than a dictionary application to help them with vocabulary in class.

Research Question 3: Will the use of mobile devices improve students' vocabulary knowledge?

To measure student improvement, a paired samples T-test was used in order to answer the third research question. As shown in table 1 and 2 there was a significant difference in the scores for pre-test and post-test of both Unit 1 and Unit 2. These results suggest that the use of mobile devicesduring lesson has improved students test scores, specifically of English vocabulary knowledge acquisition.

Conclusion and Discussion

After examining the collected data, the findings of this study support that that first year Thai students at Sripatum University have improved their language acquisition after using their mobile devices. MALL has offered numerous practical uses in language learing and made language learning engaging. Most research on game-based learning revealed that this kind of MALL activity helps students acquire new vocabulary items in a motivating way. Along this vein, Beatty (2013) reported that mobile games are an attractive medium to deliver learning activities that motivate learners. Using technology promotes language learners' motivation, creates positive attitudes toward learning a foreign language.

However, there is also an obvious disadvantage to using MALL, such as its dependence on having an online Internet connection. In some instances a wide bandwidth and fast cellular network may not always be consistent nor present and hence be subjected to disturbances of many kinds. Still, as a result of this issue, Trifanova, Knapp, Ronchetti, and Gamper (2004) and other software companies are developing a program which allows learners of web-based courses to hoard online content so that it can be used during periods of disconnection.

The researcher also identified that there is still a scope of improvement and refinement for Mobile assisted language learning. Future studies may be conducted to view the advantages and disadvantages of MALL and a comparative study to verify the findings of previous study and make sure that it is worth investing in such a new approach in language teaching.

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WEB-BASED INSTRUCTIONAL DEVELOPMENT OF COMPUTER PROGRAMMING FOR MATHAYOMSUKSA 5 STUDENTS

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ABSTRACT

The 3 main purposes of the research were (1) to study efficiency of web-based instruction; (2) to study learning achievement based on using web-based instruction; and (3) to compare learning achievements in computer programming of Mathayomsuksa 5 students. The research sample consisted of 29 Mathayomsuksa 5 students studying in Demonstration School of Valaya Alongkorn Rajabhat University under the Royal Patronage at the first semester of 2019. The research instruments included (1) web-based instruction, (2) the lesson plan, (3) a students' learning achievement test, and (4) a practice evaluation form of computer programming. The collected data analyzed by using descriptive statistics comprised frequency, mean, and standard division. The research findings were as follows: (1) the efficiency of web-based instruction was 83.33/80.00 which was expected 80/80, (2) learning achievement score which was an excellent level of 78.93%, and (3) the post-test score of learning achievement was higher than pre-test score which has statistically significant difference at .05.

Keywords: web-based instruction, computer programming

1. Introduction

The main objectives of The Ministry of Education are responsible for regulating, controlling student, and management education in terms of changing technology. Technology section (section 4) is provided by the basic education core curriculum B.E. 2551 (Revised edition B.E. 2560). It aims to study knowledge as well as skills so that students can solve problems or develop jobs by using engineering design processes, and they are able to solve problems systematically. They are able to search for information or assessing information application of computational thinking skills and knowledge in computer science, digital media, information and communication technology, and they can handle their real-life problems creatively. Finally they can make decisions using a variety of information and testimony (Ministry of Education, 2017).

Regarding to the analysis of the problems of computer teaching and learning according to the Basic Education Basic Curriculum 2008, the subjects are specified in the Occupation and Technology Department such as focusing on applying information technology and tools rather than problem solving that does not support problem-solving skills as they should practice. Therefore, 80 percent of students who study in computer programming cannot solve computer programming problem and the instructors who have responsibility for the course teaching lack in understanding of the significance of computer subjects as well. For the reasons, students' learning achievement was lower than standard evaluation criterion. (Demonstration School of Valaya Alongkorn Rajabhat University under the Royal Patronage, 2019)

For improving students' learning achievement, teacher must construct and apply the instructional media in classroom to help students practice and review the lesson, and also the media can help improve students' learning achievement. web-based instruction will provide with the benefits to student interns of studying and reviewing content without studying location and time, and then WBI destroys individual difference. The instructor can monitor real time of individual student progress on database system reducing expense and time. Students are going to develop skill of solving computer programming problem when continuous practice.

The introduction and the important of instruction have related computer programming above represented that teacher develops web-based instruction of computer programming for Mathayomsuksa 5 student with flip-classroom technique to enhance critical thinking and solving problem about computer programming by using computational thinking. Student can study basic of computer programming everywhere and every time. Repeating studying through website increases critical thinking and solving problem skill of student that related high students' learning achievement.

2. Research Objective

(1) To study the efficiency of web-based instruction of computer programming for Mathayomsuksa 5 student.

(2) To study students' learning achievement of Muthayomsuksa 5 student based on using web-based instruction.

(3) To compare students' learning achievement in computer programming for Mathayomsuksa 5 student before and after using web-based instruction.

3. Research Framework

The research framework of web- based instruction in studying computer programming for Mathayomsuksa 5 students is shown in figure 1.

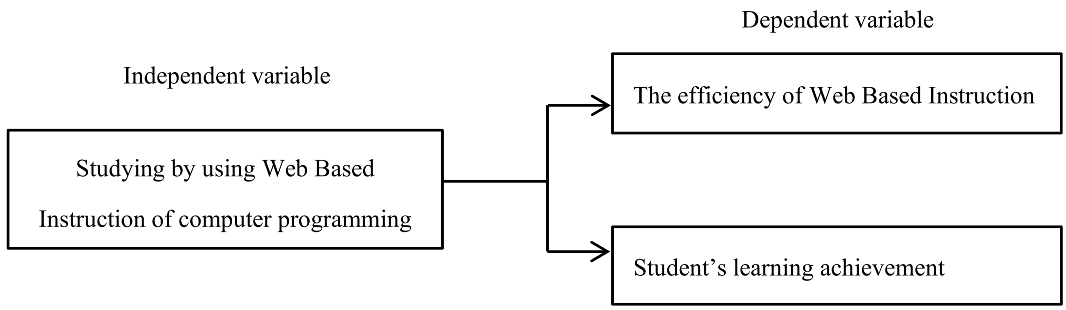

Figure 1 Research Framework

4. Hypothesis

(1) The efficiency of web-based instruction of computer programming for Mathayomsuksa 5 students has 80/80 criteria.

(2) 70 percent of student has students’ learning achievement based on using web-based instruction at a good level.

(3) Student has students’ learning achievement score after using web-based instruction of computer programming higher than before using.

5. Research Methodology

5.1 Research Design

This research was designed by using one group pre-test post-test design (Luan Saiyod and Angkana Saiyod, 2000). The computer programming examination was took by research sample. The web-based instruction included 5 plans for 18 hours. The research design was shown in table 1.

Table 1 One group pre-test post-test design.

Pre-test	Treatment	Post-test
T_1	X	T_2

T_1	represents	Pre-test
T_2	represents	Post-test
X	represents	web-based instruction of computer programming

5.2 Population and Sample

(1) Population

The population of this research was Mathayomsuksa 5 students studying at demonstration school of Valaya Alongkorn Rajabhat Univesity under the Royal Patronage in semester 1, of the 2019 academic year.

(2) Sample

The subject were 27 students of demonstration school randomly draw from those studying at Valaya Alongkorn Rajabhat Univesity under the Royal Patronage in the first semester of 2019.

5.3 Variable

Independent variable was studying based on web-based instruction of computer programming. Dependent variables were the efficiency of web-based instruction and students' learning achievement.

5.4 Research Instruments

(1) The web-based instruction of computer programming were then scrutinized and related by five experts using 5-point scale, excellence, to very good, good, fair and to poor. Web-based instruction were related at an good level average at 4.47; the overall efficiency based on a 80/80 criteria, was found to be at 83.33/80.00.

(2) The lesson plan of computer programming included the concept of the basic education core curriculum B.E. 2551 (Revised edition B.E. 2560). There is 5 plans consisting 11 topics. Lesson plan was considered by five experts using 5-point scale. The statistic use for analyzing the appropriate of lesson plan were percentage, mean and standard deviation. Web-based instruction had a good reliability ($\overline{X}$ = 4.47).

(3) The students' learning achievement of computer programming test included 20-item multiple choices, with 1-item practice test, with the Index of Item Objective Congruence of the 0.60 - 1.00, difficulty of 0.17 - 1.00, the discrimination of 0.33 - 1.00, and the reliability of .804.

(4) The practice evaluation form of computer programming was created by using the rubric score with 4-point scale, excellence, good, fair and to poor. The practice evaluation form was considered by five experts. The Index of Item Objective Congruence was 0.25 – 1.00.

5.5 Data Collection

At the beginning of the session, a pre-test was administered to the subjects, and the post-test was given at the end of the experiment session. Moreover, practice evaluation form was used for evaluating computer programming skills at the end of each plans. Data was collected by pre-test, post-test, the exercise and practice evaluation form.

5.6 Data Analysis

(1) The efficiency of web-based instruction was analyzed by using overall score of the exercise with percentage. The overall score was compared with post-test score based on 80/80 criteria.

(2) The students' learning achievement in computer programming was defined with percentage, mean and standard deviation.

(3) The students' learning achievement was compared by using t-test.

6. Research Findings

(1) The result of studying the efficiency of Web-based in computer programming for Mathayomsuksa 5 students is shown in table 2.

Table 2 The efficiency of Web-based instruction of computer programming for Mathayomsuksa 5 student.

Testing	N	Full score	$\bar{X}$	SD	P	Efficiency criterion
Formative (E_1)	27	90	75.00	5.46	83.33	80
Post-test (E_2)	27	20	16.00	1.39	80.00	80
	Efficiency E_1/E_2 83.33/80.00					

From table 2, efficiency criterion of Web-based instruction of computer programming for Mathayomsuksa 5 students were 83.33 score (E_1) and 80.00 score (E_2) respectively. It was higher than standard criteria.

(2) The students' learning achievement based on using web-based instruction of computer programming for Mathayomsuksa 5 students shown in table 3 below.

Table 3 Learning achievement based on using web-based instruction of computer programming for Mathayomsuksa 5 student.

Score	Scale	Level	N	Percent	$\bar{X}$	SD
16 – 20	75 – 100	Excellent	16	59.26	16.94	0.85
11 – 15	50 – 74	Good	11	40.74	14.64	0.67
6 – 10	25 – 49	Fair	0	0	0	0
0 – 5	0 - 24	Needs improvement	0	0	0	0
Total			27	100	-	-
Overall average			-	78.93	15.79	0.76

From table 3, the overall average of learning achievement in Web-based instruction of computer programming for Mathayomsuksa 5 student was 78.93 which was an excellent level. For an excellent level, 16 students achieved the score of 59.26 between 16 - 20. For a good level, 11 students achieved of 11 – 15 or about 40.74 percent.

(3) The comparison learning achievement of web-based instruction of computer programming for Mathayomsuksa 5 student. Pre-test and post-test scores were considered by using t-test. The both pre-test and post-test are shown in table 4.

Table 4 The comparison students' learning achievement in web-based instruction of computer programming for Mathayomsuksa 5 student between pre-test and post-test scores.

Testing	N	Full score	$\bar{X}$	SD	t	p-value
Pre-test	27	20	9.11	3.04	5.61*	.000
Post-test	27	20	13.04	2.36		

* $p <= .05$

From table 4, there is the significant difference between the pre-test and post-test learning achievement in web-based instruction of computer programming for Mathayomsuksa 5 students at the .05 level.

7. Discussion

The results of using web-based instruction of computer programming can be discussed as follows:

(1) The efficiency criterion of the web-based instruction for Mathayomsuksa 5 students was found to be at the 83.33/80.00 of E_1/E_2 and it was higher than standard criteria. It might be that the video contents motivated student learning. Moreover, the short summary under video content involved student understand the concept of the lesson, and then summary score with the description of the evaluation which represented at the score summary page related repeating exercise. This results are in accord with the findings found by Jankaow Saiplaeng (2017: 45-52) studied development of mobile learning for process modeling of system analysis and design. The research result was represented that the efficiency of online lesson was 82.33/86.67. The discussed result was also found by Supida Teangjan and Sivanit Uttawuttikul (2017: 1643-1656) 's study on learning achievement by using online learning in problem solving technique by using STAR in surface and volume of Mathematics for Mathyomsuksa 3 students of Watthasa;a school. The research result represented that efficiency criterion of online lesson was 81.19/82.08. Furthermore, research results were also found by Suwannee Ketkumkaw and Rungrod Phongkitwitoon (2017: 112-119) who studied using simulation technique on computer multimedia lesson for basic of computer programming of Mathayomsuksa 5 student. The efficiency of lesson was 84.78/80.29 which was higher than the standardize.

(2) The overall of students' learning achievement score after using web-based instruction of computer programming for Mathayomsuksa 5 students to be found at a good level (78.93%) which is in accordance with the assumption. This might be because students have more time to study and practice computer programming. Students can manage learning plan by themselves. This finding was in line with that found by Khan theory (Khan; refer to Adisak Kantharorod, 2559: 16) who described the characteristic of e-learning. The principle also involved the research of Chakrit Aonbaow ans Suchat Wattanachai (2017: 150-158) who studied critical thinking process in structural programming of C language with online learning environment for the constructivism. The students' leaning achievement was found to be at a good level ($\bar{X}$ = 75.76).

(3) The post-test score of students' learning achievement in web-based instruction of computer programming for Mathayomsuksa 5 students was to be significant higher than the pre-test at .05 level. The reason for this might be that the students had more than enough time to practice programming skill in class. Moreover, the flip classroom technique separated the way to learning that involved using web-based instruction for practicing the lesson and studying computer programming which included various case study of computer programming and the short answer. The finding were in accord whit those found by Suwannee Ketkumkaw and Rungrod Phongkitwitoon (2017: 112-119) in this study on using the simulation technique on computer multimedia lesson for basic of computer programming of Mathayomsuksa 5 students. The overall score of students' learning achievement was 11.95 at the .05 level. Moreover, the founding were also found in congruence

with those found by students' learning achievement based on using web-based instruction of computer programming related to research of Wiwat Meesuwan (2018: 162-172) who study social media for communication skill by using flip classroom. The research result represented that achievement scores was significant higher than before using social media at .05 level and result discussion result also found by Jankaow Saiplaeng (2017: 45-52) developing mobile learning for process design of system analysis and design. The learning achievement was significant higher than before using mobile learning lesson at .05 level.

8. Suggestion

1. Recommendation for practice

(1) Teacher should add the various case study for computer programming.

(2) The teacher should apply more technique for creating the collaborative learning, for example, brain storming and discussion lesson.

(3) Teacher should define the schedule for sending the exercise on web-based instruction.

2. Recommendation for future research

(1) Teacher should create blog to web-based instruction for providing student real-time contact to teacher.

9. Acknowledgement

Express my sincere thanks for Demonstration school of Valaya Alongkorn Rajabhat Univesity under the Royal Patronage for assisting data.

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PERSONALITY TRAITS AND INFORMATION-SEEKING BEHAVIOR OF THAI HIGH SCHOOL STUDENTS IN LANGUAGE-SOCIAL PROGRAM

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ABSTRACT

The objectives of this study were: 1) to identify personality traits and information-seeking behavior of Thai high school students in Language-Social discipline; comparing male and female, and 2) to investigate the correlation between these two factors. The number of students participating in this study was 858 students all over Thailand. Questionnaire was used as data-collecting tool. It comprised of 3 parts; demographic data, Big Five personality traits, and information-seeking behavior. It was found that means of all Big Five aspects, except for Openness to experience, for female students were higher than total means while males' means were conversely. In addition, means for male students were significantly different from female's means in Agreeableness, Neuroticism and Big Five personality traits at the level of .05. In terms of information-seeking behavior, means of all aspects for female students were also higher than total means while male's means were vice versa. However, means of male students were significantly different from female's means in every aspect at the level of .05. From Pearson Product Moment Correlation, each Big Five aspect was significantly correlated with each component of information-seeking behavior at the level of .01. The positively highest coefficient was Openness to experience while the only negative coefficient was Neuroticism.

Keywords: Big Five personality traits, Information-seeking behavior, high school students, Language-Social program

1. Introduction

Personality traits play significant roles in influencing academic achievement considering as one important criteria of educational quality. Students have distinctive personality characteristics which make them prepared for having different worldviews, and thus for behaving differently in various social and educational settings. Big Five personality traits (BF) or Five factor model, the most modern personality theory to date and measured by means of some visible entities in the form of behaviors are used as personality dimensions in this study. The traits include Extraversion (E), Agreeableness (A), Conscientiousness (C), Neuroticism (N), and Openness to experience (O).

Information seeking is an instinctive and crucial mechanism for human existence (Marchionini, 1992). One would try to seek information in order to fill a need or gap in his knowledge. Information seeking behavior refers to the way people search for and utilize information (Fairer, 1990) and is a fluctuating process in terms of individual differences (Solomon, 2002; Allen and Kim, 2001; Crozier, 1997; Miculincer, 1997). The reasons for different information approaches probably are affected by not only the context but also the personal characteristics such as inner processes, information habits, and personality traits (Eskola, 1998; Hienstrom, 2003; Halder, Roy, and Chakraborty, 2010).

2. Research Objectives

(1) to identify personality traits and information-seeking behavior of Thai high school students in Language-Social discipline

(2) to investigate the correlation between personality traits and information-seeking behavior of Thai high school students in Language-Social discipline

3. Research Framework

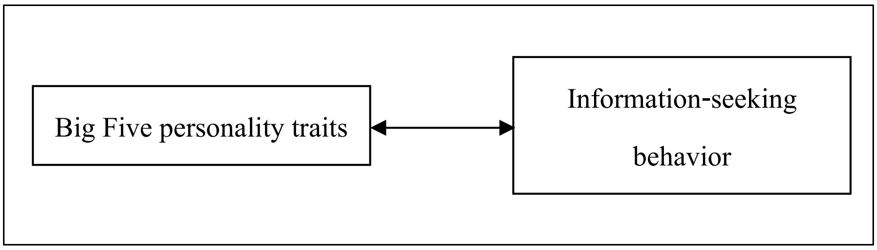

Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

The correlation design with regression analysis was applied in this study.

4.2 Population and Sample

The total of 1,249,454 Thai high school students in Thailand was the population in this study. According to Taro Yamane formula for sample size with 5% error, the sample size in this study should be 400 students. Since this study concentrated on only high school students in Language-Social discipline and we would like to get the reliable data, so the researchers aimed to collect 1,000 questionnaires. However, we got 858 questionnaires in return, accounting for 85.8%.

4.3 Variable

Variables included Big Five personality traits and information-seeking behavior.

4.4 Research Instrument

A questionnaire comprised of demographic information, personality traits inventory, and information-seeking behavior scale was used as the research tool. Personality traits inventory was back-translated from Big Five Inventory developed by John & Srivastava (1999) which measured Big Five personality traits. Information-seeking behavior scale was adopted from Lerdpornkulrat, Poondej & Koul (2017) originated from Timmers & Glas (2010). These two parts were 5-Likert scale ranged from 1 (completely disagree) to 5 (completely agree).

4.5 Data Collection

Data collection was accomplished by two ways. The researcher contacted a teacher in each school for assistance in data collection in his school. Then the questionnaires were sent forward and backward through the post office. The other way was that researcher asked for the permission and went directly to the school to collect the questionnaire herself.

4.6 Data Analysis

Means and standard deviations of personality traits and information-seeking behavior were calculated as total, male and female students. Means of all variables were then compared between male and female students by t-test analysis. Pearson Product Moment Correlation was used to analyze correlation between personality traits and information-seeking behavior.

5. Research Findings

The results of mean comparison of Big Five personality traits and information-seeking behavior between male and female students were shown in Table 1 and Table 2. In addition, the correlation between Big Five personality traits and information-seeking behavior was presented in Table 3.

Table 1 Mean comparison of Big Five personality traits between male and female students

Personality traits	Total		Male		Female		*t*	*p*
	M	SD.	M	SD.	M	SD.		
Big Five (BF)	144.05	10.65	142.19	11.29	144.90	10.25	-3.47	.00
Extraversion (E)	27.10	4.25	26.87	4.17	27.21	4.28	-1.09	.28
Agreeableness (A)	32.64	4.08	31.94	3.93	32.96	4.10	-3.43	.00
Conscientiousness (C)	29.61	4.35	29.26	4.29	29.76	4.37	-1.56	.12
Neuroticism (N)	21.51	5.07	20.80	4.78	21.83	5.17	-2.76	.01
Openness to experience (O)	33.19	4.81	33.32	5.04	33.13	4.70	.54	.59

From Table 1, personality traits of male students were significantly different from female students at the significance of .05 in the following aspects; Big Five, Agreeableness, and Neuroticism.

Table 2 Mean comparison of information-seeking behavior between male and female students

Behavior	Total		Male		Female		*t*	*p*
	M	SD.	M	SD.	M	SD.		
Information-seeking behavior (ISB)	148.69	21.48	144.40	22.88	150.63	20.55	-3.97	.00
Source used (SO)	35.07	6.05	33.81	6.60	35.64	5.70	-3.90	.00
Search strategies (ST)	45.29	7.56	43.91	8.04	45.92	7.25	-3.64	.00
Evaluation of information (EV)	51.41	8.39	50.29	8.46	51.92	8.31	-2.64	.01
Referring to information (RE)	16.92	3.64	16.40	3.56	17.16	3.66	-2.86	.00

From Table 2, information-seeking behaviors of male students were significantly different from female students at the significance of .05 in all aspects; information-seeking behavior, source used, search strategies, evaluation of information, and referring to information.

Table 3 Correlation coefficients between Big Five personality traits and information-seeking behavior via Pearson Product Moment Correlation

Factors	E	A	C	N	O	BF	SU	ST	EV	RE	ISB
E	1.00	.32**	.37**	-.44**	.33**	.61**	.25**	.23**	.20**	.26**	.28**
A		1.00	.45**	-.41**	.14**	.56**	.19**	.14**	.13**	.17**	.18**
C			1.00	-.42**	.26**	.65**	.35**	.26**	.30**	.29**	.35**
N				1.00	-.11**	-.07*	-.10**	-.08*	-.06	-.10**	-.10**
O					1.00	.69**	.26**	.41**	.40**	.29**	.42**
BF						1.00	.38**	.41**	.40**	.37**	.47**
SU							1.00	.59**	.55**	.45**	.78**
ST								1.00	.71**	.50**	.88**
EV									1.00	.60**	.90**
RE										1.00	.71**
ISB											1.00

**$p < .01$

*$p < .05$

From Table 3, correlation coefficient between personality traits, including Big Five and each trait, and information-seeking behavior showed positive correlations at the significance of .01 for all studies variables except Neuroticism having negative correlation. The highest positive correlation coefficient was Big Five (r = .47) followed by Openness to experience (r = .42), and Conscientiousness (r = .35) respectively.

6. Discussion

The results showed the significant correlation between each dimension of Big Five personality traits and information-seeking behavior as a whole. Positive correlation was found between information-seeking behavior and Big Five traits altogether, Openness to experience, Conscientiousness, Extraversion, and Agreeableness sorted by correlation coefficient. On the other hand, only Neuroticism had negative correlation with information-seeking behavior. The results were mostly congruent with Halder, Roy, & Chakraborty (2010) studying the influence of personality traits on information-seeking behavior of the university students in India. They found that information-seeking behavior as a whole was positively correlated with Extraversion, Openness, and Conscientiousness and negatively correlated with Neuroticism. The reasons were discussed as follow:

Openness to experience was positively correlated with Using sources (SU), Applying search strategies (ST), Evaluating information (EV), Referring to information (RE), and Information-seeking behavior as a whole (ISB). This dimension of the traits associated with intellect, openness to new ideas, cultural interests, educational aptitude and creativity. According to theoretical developments in the information-seeking literature, one's wish to seek information should increase when he feels more self-confident and intellectually progressive (Tidwell, 2005). Thus, one with high Openness to experience, having tendency to be active, imaginative, aesthetically sensitive, inventive and curious, was found to be very pleased with his information seeking.

Conscientiousness was also found to be positively correlated with SU, ST, EV, RE, and ISB. Conscientiousness is occasionally defined as the will to achieve (Smith, 1967 cited in Tidwell, 2005) and related to competent, orderly, disciplined and dutiful, deliberate purposeful, punctual and reliable (Costa & McCrae, 1992 cited in Halder, Roy, & Chakraborty, 2010). Therefore, in order to gain relevant information, Conscientious students are willing to work hard, determine to achieve, have self-control, and persistence.

Extraversion was positively correlated with all the information-seeking dimensions. Extraversion is used to describe the characteristics of sociable, expressive and show initiative (Costa & McCrae, 1992 cited in Halder, Roy, & Chakraborty, 2010). According to Heinström (2003), Extraverts, being more purposeful in information need and high in searching eagerness, were revealed to be actively using, sharing and exchanging information to the maximum which is one of the characteristics of high information seekers.

Neuroticism was the only dimension having negative correlation with all dimensions of information-seeking behavior. Neuroticism, emotional instability, relates to anxiety, depression, insecurity, and vulnerability. Negative emotionality may form a barrier to successful information retrieval since it consumes energy and distract concentration. If high Neuroticism students found nothing on their primary inquiries, they would give up their searches for information in databases.

7. Suggestion

The same study should be done with high school students in Mathematics-Science discipline to compare the result between the two disciplines.

8. Acknowledgement

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A NEW TREND IN AN ENGLISH COURSE FOR EARLY CHILDHOOD

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ABSTRACT

A new trend in an English course for early childhood emphasizes teaching vocabulary related to daily life, together with using such activities as word-object association. The mode of learning employed by young children is called an Emotional-based Learning. That is, the children primarily learn about things that are of interest to them. The use of Learning-based Teaching methods, with the Whole Language teaching technique which focuses on memorizing the word-shape structure will enable the children to have fun in their learning and stimulates their curiosity and desire that prompt them to follow the lessons. In this way, the young children are able to remember and associate the vocabulary they learn with things in the real world. The teaching techniques used in the new trend in an English course for early childhood are varied, including teaching English vocabulary through stories, teaching English vocabulary through music, and teaching English vocabulary through games. The teaching and learning media used in teaching, such as flashcards, picture books, videos, and do-it-yourself activities and others, must serve the purpose of the lesson, consider what is being offered, must be up-to-date, and can capture the children's attention. From observing the teaching behavior of foreign early childhood teachers, it is found that the teaching techniques employed by individual teachers are slightly different from one another, depending on the character and situation within the classroom. The contents of this article cover the new conceptual framework of a new trend in an English course for early childhood, concepts and theory about language development in early childhood, concepts of educational media for early childhood, teaching methods and teaching media and experience from observing the teaching behavior of foreign early childhood teachers in the new trend English course for early childhood, conclusion and suggestions, respectively.

Keywords: English Course, A New Trend in an English Course, Early Childhood, Teaching Guidelines, Teaching Materials

1. Introduction

Starting to learn English since early childhood or pre-school children helps children become more acquainted with English. Whether the progress of their learning is slow or fast, or whether their learning outcome is great or small, depends on the early childhood teacher. That is to say, an early childhood teacher plays a significant role in contributing to the children's success in their language learning. Good childhood teachers need to know their children well. The findings of many studies related to human brain development (Tickell, 2011: 8-9; Gilmore, John H., Santelli, Rebecca Knickmeyer, and Gao, Wei., 2018: 123-137;), revealed the significance of early childhood education, especially in the early years of life that is the best time for learning. Early childhood need to be taken good care of by parents since they were born. Giving them love, warmth, paying attention to their needs, and spending quality time with them will facilitate their brain development to the full potentiality. Understanding of early childhood improvement has many positive effects on teachers. It benefits teachers to better understand their children's learning processes and to choose appropriate teaching techniques, prepare materials and activities for teaching these young children.

Early childhood will learn primarily from their interests (Kiewra & Veselack, 2016: 71-98). The use of learning-based teaching methods, the method that focuses on memorizing word structure will enable the children to enjoy the lesson and become excited in their learning. More significantly, this helps them remember and link vocabulary learned to everyday life. In addition, the teaching media also helps both the children and teachers. The teaching media helps the kids understand complex content more easily, and stimulates their interest as well as to encourage them to interact with other children and the teacher. Teachers use materials and materials for teaching and learning which help to make the teaching atmosphere more interesting. As a result, teachers have more fun in teaching than using lecture methods alone. The media also helps teachers to reduce the burden of content preparation and encourages them to focus their attention on the preparation and production of materials. The authors of the article are interested in the information and theory of a new trend in an English course for early childhood since English is the global language that is used for communication throughout the world. When dealing with other people from different languages and cultures, everyone needs to use English. For this reason, introducing English to children since they are at an early age will enable them to become familiar with the language and help them remember the words and sentence structures.

The contents of this article cover the new conceptual framework of a new trend in an English course for early childhood, concepts and theory about language development in early childhood, concepts of educational media for early childhood, teaching methods and teaching media and experience from observing the teaching behavior of foreign early childhood teachers in the new trend in an English course for early childhood, conclusion and suggestions, respectively.

2. The New Conceptual Framework of a New Trend in an English Course for Early Childhood

In general, the words "curriculum" and "course" are often used interchangeably. However, in education, the word "course" has several meanings. For example, a course means a study plan that consists of specific goals and objectives that are to be presented and manage, together with the content which will include the type of instruction according to the purpose and the evaluation of course outcomes. This also means the tools to determine the direction of education, and an indicator of the quality of educational products. Whether official documents or government regulations in order for the person who is responsible for education to practice, whether educational institutions of government or private sectors, the course is like a command or regulations of a type of government which is an educational standard to control teaching and learning in various educational institutions, as well as being one of the standard criteria in allocating budget for personnel, buildings, and educational materials for educational institutions. It is an action plan of educational administrators that must be supervised, monitored and evaluated in accordance with the educational management policy of the government. It is an action plan or a guideline for teachers' performance because the course will suggest the objectives, teaching and learning activities and teaching evaluation. In addition, the course is also important in terms of being an indicator of national prosperity because education is a tool for human development.

The course can be divided into 5 categories: (1) a *Subjective Course* – a course with an emphasis on content, the organization of which is independent from other subject or real-world practice; (2) *Correlation Course* – a course that combines the content of other related subjects together; (3) *Competency-oriented Course* - a course that relates between the purpose of the teaching and learning activities to planning, delivering, and the intended outcome; (4) *Social Activity and Problem Course* – a course with an emphasis on social activities and problems; and (5) *Individual Need and Interest Course* – a course that emphasizes individual needs, behavior, aptitude, and interests of individual children so they can learn individually and at their own pace (Murray, 2018: 335-339).

In addition, the course has a vital component as a guide for teaching and learning, evaluation and improvement of the course. The course structure aims at attaining a set of experiences for achieving the goal. Method of organizing the experience so as to teach effectively. There is an assessment method to check the objectives. The course consists of 4 components: objectives, subject contents, learning activities, and evaluation criteria. The internal relationship of these components is shown in Figure 1.

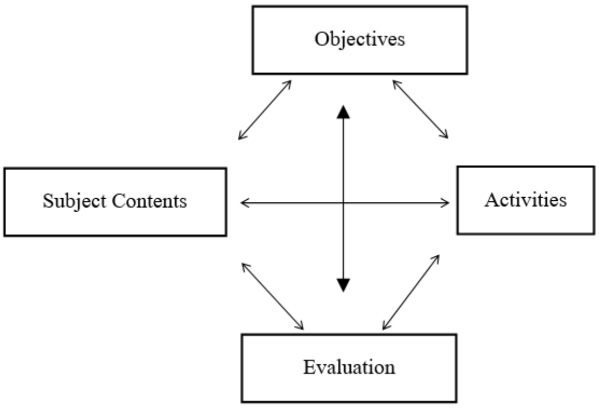

Figure 1 Course Components

Source: Applied for this article

3. Concepts and Theory about Language Development in Early Childhood

Early childhood refers to children between the ages of 2 - 6 years, the phase during which young children are growing up. Early childhood of this age need to be independent and want to explore and experiment with their own abilities, which are in consistence with their growth developmental stages physical, emotional, social and intellectual. Early childhood is in the golden age of life, particularly during the first year of development. It is the basis of all aspects of growth development, especially the brain because the brain grows and develops the fastest. Parenting during this period affects the quality of early childhood through their whole lives.

Regarding language development, a number of theories have been formulated. For example, the *Self-Satisfaction Theory* asserts that early children learn to utter or imitate a sound that gives them satisfaction. Al-Zoubi, Samer Mahmoud (2018: 151-162) believes that the ability to listen and enjoy the hearing of others and themselves is important to the development of language. Similar to the self-satisfaction theory, the *Imitation Theory* stresses imitation as the main cause of language development. Young children learn to imitate the sounds through hearing or vision because those sounds either give them satisfaction or arouse their own interests. Since their span of attention is short, the children will have to be expose to repeated stimuli. Studies of the process of imitating the spoken language of early childhood found that the beginning occurs when parents imitate an early childhood's voice during the audio playing phase or when they are learning phonics. *Reinforcement Theory* asserts that all behaviors are repeated when reinforced with some conditions. Studies have shown that early children speak more when rewarding or reinforcing. In *Perception Theory*, Liberman assumes that listening perceptions depend on the voices. Lavan, *et al*. (2019: 90) suggested that early childhood often stare at us when speaking. This may be because they listen to us. They repeat themselves, or learn to utter sounds by reading lips and then learning words. The *Coincidence Theory* asserts that children accidentally learn the sounds similar to the meaningful sounds in their parents' spoken language and are given instant reinforcements by parents that prompt them to acquire and develop their language. In the *Biology Theory,* Lenneberg believes that language development has a biological basis. The process in which a person speaks depends on the organ in which they are voiced, early childhood will start to slack and speak respectively. Finally, the *Reward Theory* which asserts that early childhood kids develop their spoken language because they are influenced by the language their mothers use when they are taking care of their young children.

4. Concepts of Educational Media for Early Childhood

Media means an intermediary used to transfer or convey knowledge in various ways from the messenger to the receiver to understand the meaning exactly. In teaching, the media used to convey knowledge in the communication process between the teacher and the students is called teaching and learning media. In education, many other terms are used interchangeably as there are many words that have the same meaning as many teaching materials such as teaching media, educational media, teaching aids, etc. Educators often use the term "educational techno log" to refer to a combination of different types of teaching media such as materials, equipment and method that are to be used systematically in teaching and learning.

Teaching and learning media includes a variety of materials, ranging from realia, to print and non-print materials, to projected and non-projected images, and to audio visual materials. It also includes hardware or large media such as computer tools and image projectors, such as movie projectors, slide and opaque projectors, and small media or software such CAI packages, and other digitally recorded sound, images and characters.

5. Teaching Methods and Teaching Media and Experience from Observing the Teaching Behavior of Foreign Early Childhood Teachers in a New Trend in an English Course for Early Childhood

Based on the principles of early childhood development, children are motivated to learn out of their own interests during their playing activities and interaction with adults in a natural setting. They learn to have fun memorizing the word structures and associating them with the real world objects in their daily lives. To facilitate their learning, related words should be grouped in categories so that the children can learn with ease. For example, words can be grouped into such categories as food, vegetables, fruits, household appliances, body parts, colors and shapes and so forth, and the children need to be given ample opportunities to review this vocabulary using a variety of methods to avoid boredom (Prieto, 2018: 613-623). The vocabulary can be reviewed using such activities as surfing the game, jigsaw, puzzle, and guessing words, etc. Teaching new words, early childhood teachers should teach them by using sentence patterns or vocabulary that the children have already learned with only one word as a new vocabulary. Then the children are motivated to guess the meaning of that new word. In this way, the children will remember the meaning better than giving them the direct meaning. A real object can be used when introducing a new vocabulary word. Getting the children to respond in groups when answering a question is of great help as the other children can learn at the same time. Most importantly, early childhood teachers should not force them to answer.

Vocabulary category that early childhood should know includes daily activities, weather, family, emotions, numbers, shapes, 7 days and 12 months, 12 colors, vegetables, fruits, food, drinks, countries, places, houses, living room items, things in the bedroom, bathroom items, items in the kitchen, different rooms in the school, different things in the classroom, various subjects, hobbies, vehicles, body parts, clothes, personal belongings, nature, seasons, musical instruments, toys, professional sports, pets, wildlife, aquatic animals, and special holidays.

For the teaching model, there are a variety of teaching styles, but in this paper discussion will focus on the following: (1) teaching English vocabulary through stories (2) teaching English vocabulary through music and (3) teaching English through games.

Teaching English vocabulary through stories - a story is considered a good medium for teaching English, especially the story with pictures because pictures and stories are considered a simulation of the story events in the world. The story should be concise and simple. Interesting stories with illustrations help young children relate the vocabulary with pictures and letters. As a result, they not only have fun but also create an experience of listening to things that really leave the narrator both the ability to pronounce, remember word structure and know how to use it in conversation. This will lead to their love of reading and become interested in learning more vocabulary. A story used in teaching should be short and simple, and contains illustrations and vocabulary that stimulates participation in activities. A story should contain repeated words and language elements or complexity appropriate to their age and developmental stage. In telling a story, the voice should be used to suit the story and mood of the character who is in the role. At certain points in the story, the children are asked to participate, such as asking questions in English while they are in a shared mood. This can be in the form of gesture, facial expressions, or acts without word, just to allow the children to have an opportunity to enjoy the lesson by engaging in some motion activities based on the story line or a character in a story. A teacher may say some sentences slowly to accompany the gesture so that the children can remember what is being said. The gesture and accent of the language can also help them have fun and are always involved. Making learning more fun, the media for storytelling should appeal to the children’s interest. The use of music in the opening story can stimulate the children’s feelings of excitement and enthusiasm.

Teaching English vocabulary through music - Music is something that is useful for learning management. It can be integrated in very phase of the teaching process. However, it has to be in congruence with the content and learning objectives of the lesson. If the early childhood teacher has brought English songs to support teaching and learning, the lessons will be meaningful and interesting. Music can bring diverse teaching activities to a classroom. Songs to be used need to be short and simple, and grammatically correct in structure. The lyrics need to be clear and easy to learn and remember or recite. In addition, the song must be chosen to suit the age and grade level of the children. Therefore, before using the song for teaching and learning, early childhood teachers should consider how suitable the music is. In using the song in class, the teacher must first explain to the children briefly what the song is about and introduce new words and their meanings, either with or without instructional media. Then the whole song is sung to the children 1-2 times. After that, one or two lines is sung, and the children sing along with the teacher. When the students sing each line correctly, then they proceed to the next line until the whole song is mastered. Next, both the teacher and the children sing the whole song, from the beginning to the end together. If the lyrics are long and have long words, the teacher may write the lyrics on the board for them to see and read (if they are able to do so). Teaching how to sing songs correctly must be done step by step. Early childhood teachers must plan, prepare various media devices to be ready. Importantly, the early childhood teachers themselves must be ready.

Teaching English vocabulary through games. Games, especially language games, are an important tool for language learning. They bring fun and excitement to the classroom, for both the teacher and the children. For the teacher, games allow the teacher to actively engage the children in their learning in a relaxed, and stress-free atmosphere. For the children, games motivate them to learn the language, through their physical movements, and holistic engagement without knowing or realizing that they are actually practicing or performing their learning tasks. Language games also encourage the children to use the language with confidence, to foster their positive attitude toward the learning and teaching English. Each game should include the name of the game, the purpose, the equipment required for the game, method of playing the games. To be effective, the games selected for the class must be appropriate for the classroom environment, and the knowledge and ability of the children. Games can be communicative and non-communicative in nature. Communicative games are designed to enhance the children's communication skills; they provide plentiful opportunities for the children to communicate, chat, exchange or improve information by using the English structure or vocabulary given. Non-communicative games are designed for the children to simply have fun. -Games should not be focused on competition, with losers and winners. The teachers should familiarize themselves with the game before using it in teaching. This can be done by reading the rules and by practicing many times to achieve good understanding of the game. Each game should take from 8-10 minutes and certain games should not be used very often because they are likely to bore the children and make them become less enthusiastic in playing or participating. Also, do not use certain games very often, as this will make early childhood not enthusiastic about playing.

Instructional materials for early childhood kids must be carefully selected and adapted to suit the interests, needs, and developmental stages of the children. The materials must be colorful, attractive and easy to understand, and they must be adapted to changing needs and age of the children. Furthermore, the selected media must foster the language points to be taught; otherwise, they make the children confused.

There are a variety of useful media that helps to facilitate effective learning. Most media stimulate the children's interests and motivation, thus allowing them to become more involved in their learning activities, instituting fun in the lesson, and ridding them of their boredom. Instructional media also encourage human interaction among the children and between the children and their teacher, thus encouraging them to establish good rapport among themselves. Besides, the media helps to foster the children's good study habits, creativity, and problem-solving ability. They also help solve the problem arising from the individual differences, and create a classroom environment that is conducive to teaching and learning, thus providing fun for not the teacher to teach but for the children to learn.

In observing the teaching behavior of a foreign teacher teaching the new English course to young children, the following were noted. **In the case of Jason Timm**, the principal at I-Genius Kids Language Institute, it was found that the pronunciation was loud and clear. In introducing a new word, he would repeat the word about 3-4 times. When the children did not pronounce the word correctly, he would repeat the pronunciation to the children until they pronounce the word correctly or closely enough to the correct one. After that he had the children practice saying the word by themselves. To teach the meaning of a word, he would bring in real objects to show what the word means. For example, in teaching the word "battery", he brought a remote control device to the classroom and removed the battery out for the children to see and touch. He showed them how the remote control device works or not work - with a battery in place and with no battery in place. He also gave an opportunity for the children to play with the device. Immediately after the vocabulary session, he would have the children play a game to reinforce the vocabulary learning. The game was short and did not take long time. In a case where some children failed to pay attention to what the teacher was saying, the teacher had to bring their attention back to the lesson by either using loud voice sounds or scolding them. This is considered a necessary measure to keep the class in order and get the children to focus on their lesson.

In the case of Nick Jones, another early childhood teacher, he always displayed his smiling face to the children, and this facial expression helps bring the children to come close to him in a friendly and trusting manner. The smiling face dispels the fear of talking or conversing with the teacher, and Nick Jones always listened to what the children had to say, responded to their query, and engaged in a mutual dialogue with them. This certainly helped the children to develop their communication skills. Listening to what the children were saying makes them dare to talk as well. Another technique employed by Nick Jones is having a 5-minute memory test before the class was over. This five-minute test could be in the form of recalling the words from flashcards, for example. This test of memory was designed to provide an opportunity for the children to review the vocabulary items previously learned and to assess each child' s development.

In the case of **NSindiso Duma,** it was found that in teaching a song, she performed the dance to accompany her singing. She led the children in their dancing and singing, thus creating an enjoyable and relaxing atmosphere conducive to learning. For example, in teaching a song called "We're Going on a Lion Hunt," at one point she even turned off the lights to create an atmosphere of the children walking into a dark cave. Singing and dancing create a cozy atmosphere that encourages the children to express themselves freely and positively reinforce the development of their communication skill. When teaching pronunciation of a word with difficult sound ending, she would use her mouth shape illustrate the way to pronounce the sound and then ask the children to utter the sound correctly. In addition, NSindiso Duma was calm and positive and would not be easily distracted when some children in the class interrupted their classmates or interfered with her teaching. She would use other educational materials to bring the children back to their lesson.

6. Conclusion

Young children will learn things primarily out of their interests. The most appropriate teaching method is learning via playing, interacting with adults in a natural language setting, and teaching that focuses on memorizing the word-shape structure. All these will make children have fun and have a desire to follow up and learn more. Most importantly, language learning will become more effective if the children are able to remember what they have learned and associate those language items with their real world experience or objects. This requires meaningful and stimulating teaching and learning activities that prompt the children to become more engaged in their language learning. Instructional media also play an important role in helping the children to learn the language quickly and with ease. The instructional media should be selected based on their novelty and ability to serve the purpose of the lesson, as well as their attractive quality to draw the attention of the children and to reinforce their learning. Examples of the teaching and learning media include flashcards, pictures and drawings, video clips, and children's development toys, to cite only a few. The language items can be effectively taught using stories, songs, and games. Experience from observing teachers' behavior shows that individual teachers have their own idiosyncratic personality traits and distinctive teaching techniques. However, one thing that they commonly share is their desire to create atmosphere conducive to learning by bring fun to their classroom. They believed that a fun and stress-free atmosphere will enable the children to become more engaged in their learning activities, whether in the vocabulary learning or in their pronunciation practice. The teaching behaviors displayed by these foreign teachers provide an insight into their classroom practice and can be adopted and modified for use in any other English for early childhood classroom in different contexts.

7. Suggestions

7.1 Teachers should have a solid knowledge of every aspect of early childhood development, including brain development, language, social, emotional, sensory and motor development.

7.2 A study on the factors contributing to the success, obstacles, and solutions to the problems relating to the teaching of English to young children should be undertaken.

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DEVELOPMENT OF AN ENGLISH READING AND WRITING EXERCISE BOOK ON THE TOPIC OF MY DAILY ACTIVITIES FOR THE SEVENTH GRADE STUDENTS

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ABSTRACT

The objectives of this research are threefold: (1) to study the efficiency of English reading and writing exercise book (2) to study learning achievement using English reading and writing exercises book and (3) To compare learning achievement on the topic of My daily activities for the seventh grade students .The research sample was 45 seventh grade students studying at Watsuttawas School in the first semester of the academic year 2019. The research instruments included (1) English reading and writing exercise book (2) lesson plan and (3) English reading and writing test and statistical analysis included analyse by using statistical values; namely, percentage, mean ($\overline{X}$) and standard deviation (SD) and using t-test (Dependent Sample)

The following research findings were revealed: (1) the efficiency of English reading and writing exercise book was 80.36/ 80.55 which was higher than the standardized criteria of 80/80; (2) the learning achievement score was found which was very good of 80.55 and (3) the learning achievement score of the seventh grade students after the learning management using English reading and writing exercise book was significantly higher than pre-test score at the level of .05

Keywords: The efficiency of English reading and writing exercise book, Learning achievement

1. Introduction

In nowadays, learning English is very important and necessary in daily life because it is an essential tool for communication, education, searching for knowledge, occupation and entertainment and understand of different cultures and community; bringing friendship and cooperation with many countries. It can develop the students understand themselves and others more. The students understand the differences in language, culture, traditions, thoughts, social, economic, politics, governance and they have good attitude towards using English, also they are able to use English for communication, including simply access to various information and they have vision of living. (Office of the Basic Education Commission, 2008, p.1).

According to an importance of English as mentioned above. The Ministry of Education has specified English learning management as a foreign language in all level for strengthen humanity, ability in thinking and working creatively. The students are able to develop their thoughts which are the foundations and prepare for learning of the new generations accord with social information, students have broad vision while learning English. They can develop their ideas and see the world wider with the expectation that students learn English continuously from primary to elementary. They are able to receive and send messages. They can use English to transmit their ideas, knowledge, understanding, feeling and point of view for exchange information and experience which is useful to develop themselves and society.(The Ministry of Education,2008), especially in reading skill which is useful for searching for knowledge to improve and develop society and quality of life. According to the results of English test ; the Ordinary National Educational testing (O-NET), Prathomsuksa 6 students, academic year 2017, on February 24, 2018 revealed that the result of English test was an average score of 32.72 whereas the Office of the Basic Education Commission has 450,988 candidates, which is a high number of test takers compared to other institutions but it was revealed that the national average score is 36.34 which is lower 50 percent (National Institute of Educational Testing Service, 2017, p. 1) It was revealed that the English achievement of the most students is very low due to teaching technic, the teachers will focus on translation, vocabulary, memory, and grammar rules which are not strengthen in thinking skills because of the students do not understand in reading. They are unable to summarize what they learn from reading. In addition, the teacher did not teach the students to practice in reading process but they will teach by translating into Thai rather than giving the students understand using English and another important thing is that reading skills require experiences, prior knowledge, experiences in learning, the environment and learning activities that have the influences to help the learners to enjoy their learning. The teacher has to arrange activities that appropriate for age, ability, and aptitude for students and they can use English as much as possible. They should not use Thai language while learning English. The teacher should teach students to be able to use language as a tool for understanding various types of publications that appear in everyday life. There are exercises for students to use language automatically and organize the language activities that allow students to practice using the language and they can communicate in real situations and the activities must have the situation closest to the reality (Sunee Sanmut, 2009).

The problems as mentioned above made the researcher tried to develop an English reading and writing exercise book for improving or solving in English reading and writing skills for students. The English reading and writing exercise book was built with suitable for age, ability of students, besides that it was a fascinating designed, colorful picture, motivated to learn when the students look at the exercise book. It is not boring. There were various exercises, short and simple for practicing by themselves. The exercises are not too difficult to practice. It starts from easy to difficult in sequence. The students study the information sheet after that doing the exercises from what the learnt so they can practice and examine the answer key at the back of unit. Doing the exercises make students review what they have learnt so it will make students' learning achievement higher in reading and writing skill.

2. Research Objective

(1) To study the efficiency of English reading and writing exercise book on the topic of My daily activities for the seventh grade students.

(2) To study the students' learning achievement based on the mastery learning criteria.

(3) To compare students' learning achievement in English reading and writing exercise book on the topic of My daily activities for the seventh grade students before and after using English reading and writing exercise book.

3. Research Framework

The research framework of Development of an English reading and writing exercise book on the topic of My daily activities for the seventh grade students is shown in figure 1.

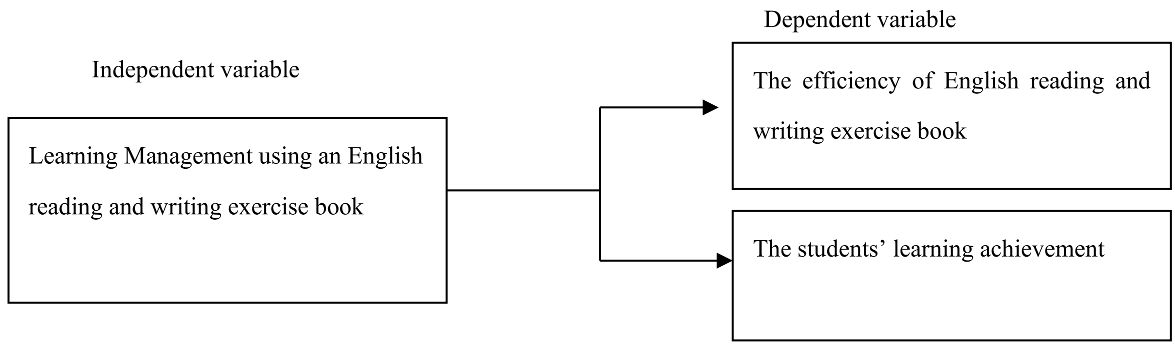

Figure 1 Research Framework

4. Hypothesis

(1) The efficiency of an English reading and writing exercise book for the seventh grade students has 80/80 criteria.

(2) Students' learning achievement based on using English reading and writing exercise book would be at a very good level of 80 percent.

(3) Students' learning achievement score after using an English reading and writing exercise book would be significantly higher than pre-test score at the level of .05

5. Research Methodology

5.1 Research Design

This research was designed by using a one group pre-test post-test design. The 40-item English reading and writing test on the topic of My daily activities was administered to the students. The English reading and writing exercise book included 10 plans for 20 hours. The research design was shown in Table 1.

Table 1 one group pre-test post-test design.

Pre-test	Treatment	Post-test
T_1	X	T_2

T_1 represents Pre-test

T_2 represents Post-test

X represents The English reading and writing exercise book

5.2 Population and Sample

(1) Population

The population of this research was the seventh grade students studying at Watsuttawas School in semester 1, of the 2019 academic year.

(2) Sample

The subjects were 45 seventh grade students randomly drawn from those studying at Watsuttawas School in the first semester of the 2019 academic year.

5.3 Variable

Independent variable: Learning Management by using English reading and writing exercise book.

Dependent variable: The efficiency of an English reading and writing exercise book and students' learning achievement.

5.4 Research Instruments

(1) The English reading and writing exercise book was prepared by the researcher included the concept of the basic education core curriculum B.E.2551 by adapting from various exercise books. The exercise book was then scrutinized and rated by three experts using a –point scale, ranging from excellent, to very good, good, fair and to poor. The exercise book was rated at a very good average at 4.48; the overall efficiency, based on a 80/80 criteria, was found to be at 80.36/80.55.

(2) The lesson plan of an English reading and writing exercise book on the topic of My daily activities included of the concept of the basic educational core curriculum B.E. 2551. There are ten plans consisting of 20 hours. The lesson plan was then scrutinized and rated by three experts using a –point scale, ranging from excellent, to very good, good, fair and to poor. The lesson plan was rated at an excellent average at 4.51.

3) The English reading and writing test on the topic of My daily activities was a 40-item, multiple choices test, with the Index of Item-Objective Congruence of 0.70-1.00, difficulty of 0.33-0.67, the discrimination of 0.73 and the reliability of 0.88.

5.5 Data Collection

At the beginning of the session, a pre-test was administered to the subjects, and the post-test was given at the end of the experiment session. Data was collected by both the pre-test and the post-test.

5.6 Data Analysis

Data were analysed with the descriptive statistics which included percentage, average and standard deviation. The tools were evaluated for validity, difficulty, discrimination and reliability. Furthermore, efficiency criterion and t-test were used to test the research hypothesis.

6. Research Findings

(1) The English reading and writing exercise book on the topic of My daily activities for the seventh grade students included 10 plans for 20 hours with a pre-test and a post-test to be taken by the subjects. The efficiency of an English reading and writing exercise book is shown in Table 2.

Table 2 The efficiency of an English reading and writing exercise book for the seventh grade students.

Testing	N	$\overline{X}$	SD	Efficiency criterion
Formative (E_1)	45	40.18	1.96	80.36
Post-test (E_2)	45	32.22	3.34	80.55
	Efficiency E_1/E_2 equal to 80.36/80.55			

From Table 2, the efficiency of the English reading and writing exercise book for the seventh grade students for the formative and the post-test were 80.36 score (E_1) and 80.55 (E_2), respectively.

(2) The students' learning achievement based on using the English reading and writing exercise book is shown in Table 3.

Table 3 Learning achievement of the English reading and writing exercise book for the seventh grade students.

Score	Scale	Level	N	Percent	$\overline{X}$	SD
30 – 40	75 – 100	Excellent	36	80.00	33.47	2.30
20 – 29	50 – 74	Good	9	20.00	27.22	1.72
10 – 19	25 – 49	Fair	0	0	0	0
0 - 9	0 - 24	Poor	0	0	0	0
Total			45	100	60.69	4.02
Overall average			-	80.55	32.22	3.34

From Table 3, the overall average of learning achievement in English reading and writing exercise book for the seventh grade students was 80.55 percent which was at an excellent level. For an excellent level, 36 students achieved the score of between 30-40 or about 80.00 percent. For a good level, 9 students achieved the score of 20-29 or about 20 percent.

(3) In the Comparison of the learning achievement in an English reading and writing exercise book for the seventh grade students, the pre-test and the post-test scores were considered by using t-test. The both pre-test and post-test are shown in Table 4.

Table 4 The comparison students' learning achievement in English reading and writing exercise book for the seventh grade students between pre-test and post-test scores.

Testing	N	Full score	$\overline{X}$	SD	t	p-value
Pre-test	45	40	23.73	2.61	28.53*	.000
Post-test	45	40	32.22	3.33		

* p <= .05

From Table 4, there is a significant difference between the pre-test and post-test learning achievement in English reading and writing exercise book for the seventh grade students at the .05 level.

7. Discussion

This research is a study of the efficiency of an English reading and writing exercise book, students' learning achievement, comparing the students' learning achievement on My daily activities for the seventh grade students using the English reading and writing exercise book. The results can be discussed as follows:

(1) The efficiency criterion of an English reading and writing exercise book on the topic of My daily activities for the seventh grade students was found to be at the 80.36/80.55 of E_1/E_2 and it was higher than standard criteria. It might be that the researcher has studied the principles of creating the exercise book, including the principles of designing then presented to the advisors for considering and making suggestions then improve, after that presented to the experts for checking and correcting it and try it out. This made an English reading and writing exercise book more effective. This results are in accord with the findings found by Suwimol Maliwan (2014: 7) who studied of Development of English language skills with English skill development exercises on the topic of English vocabulary learning for the first year students. The result of the study found that the English skill development practice which created had the efficiency of 75.55 / 83.11 and it was higher than the standard at 75/75 and in accord with the findings found of Nittayapat Tarasuk (2014:1) who studied of the research on development of the comprehension reading skill by using the mechanical start method and the chart of the fourth grade students, Wat Sai (Sin Suksa college). The result of the study revealed that the efficiency of the comprehension reading skill by using a mechanical start method and chart was found to be at 76.46/75.75 which was higher than standard criteria at 75/75.

(2) The learning achievement on the topic of My daily activities after learning by using the English reading and writing exercise book was in a very good level of 36 students which was at 80.55 percent. It might be that the English reading and writing exercise book was created by the researcher had a fascinating design, colorful and encourage to learn. The exercises had various activities that complied with the content so the students can practice by themselves. There are many exercises to practice, interesting. The English reading and writing exercise book assisted students to understand the content better, Furthermore students can feel enthusiastic to study and make students have better learning achievement and in accord with the findings found by Amphan Suansorn (2016:99) who studied of the research on the development of the English comprehension reading exercise book for the ninth grade students. The result of the study revealed that the students were satisfied with the using of the development of the English comprehension reading exercise book at the very good level and accord with the findings found by Alai Phra Sunon (2015: 1) who studied of the research on the development of English reading comprehension exercise book for the tenth grade students. The results revealed that the English reading ability of students after using the English reading exercise book was higher than before learning. The average was at 15.35 percent before learning and the average was at 18.75 percent after learning by using the English reading comprehension exercise book.

(3) The posttest score of the Learning achievement in English reading and writing exercise book for the seventh grade students was found to be significantly higher than the pretest score at .05 levels. The reason for this might be that the English reading and writing exercise book was designed with interesting, not boring, there were various exercises for students to practice by themselves and they received some advices from teachers, Furthermore the exercises were arranged in sequence starting from the easier exercises to a more difficult. The teacher was available in class to help the students when they had difficulty in understanding the exercises so it made students had a higher learning achievement. The findings were in accord with the research of Suwimon Maliwan (2014: 7) Who studied of using the English skill development exercise book on the topic of English vocabulary learning for the first year students. The result of the study revealed that the learning achievement on the topic of English vocabulary had a higher achievement score after learning with a statistical significance of 0.5 and accord with the research of Kanungnit Nuengnit (2016: 7) who studied of the research on the study of learning achievement by using the reading comprehension exercise book on "Hello ASEAN". The sample group consisted of 30 students of the sixth grade students in Ban Mae Khamuak School, Wang Chin District, Phrae Province. The result of the research revealed that the students had higher learning achievement than before using the reading comprehension exercise book on "Hello ASEAN" in English with the significantly at 0.5 level.

8. Suggestion

7.1 Recommendations for Practice

(1) Teachers should explain how to use an English reading and writing exercise book to the students clearly from the start and recommend the use of exercise book because in each exercise, there will be an answer

at the end of the chapter. It may cause students look at the answer before doing the exercise so teachers must also cultivate morality on honest as well.

(2) Teachers should let the students participate in examine their score after doing each exercise such as exchanging and checking so that students can get the scores immediately and lead to review more in lessons.

7.2 Recommendation for future research

There should be create online an English reading and writing exercise book so that students can access to practice anywhere, anytime and created in 4 skills such as listening, speaking, reading and writing and it will make students more effective in learning.

9. Acknowledgement

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EFFORTS TOWARD INTERNATIONALIZATION IN THAI PRIVATE HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

The purposes of this paper are 1) to understand the attitude of Thai private higher education institutions toward internationalization, 2) to clarify current issues through attitude surveys related to internationalization efforts, and 3) to gain a clue to consider on the future internationalization process and progress of Thai private higher education institutions. The research was a questionnaire survey with seven questions. Fifteen institutions (9 universities and 6 colleges) that cooperated with the response became the target institutions for analysis. Cronbach's reliability coefficient was 0.81. Through analysis and discussion, the internationalization efforts of universities and colleges differed in degree, and the domains of internationalization showed different processes. In the process of internationalization in the future, it is expected to utilize management approaches and formulate action plans specifically.

Keywords: Internationalization, Thai private higher education, Institution, University, College

1. Rationale of research

The political, economic, and cultural global phenomenon in the 1990s provided an opportunity to further accelerate the internationalization of higher education throughout the world. In fact, since the 1990s, there have been many conceptualistic definitions and specific discussions related to the internationalization of higher education, as seen in Paige (1993), Ellingboe (1998), Knight & De Wit (1999), Mestenhauser (2002), etc. In response to these discussions, since the 2000s, various evaluation indicators, contents, methods, and standards for internationalization of higher education have been proposed, developed, and established. For example, *Internationalization Laboratory by American Council on Education*: ACE, (2003-), *Mapping Internationalization*: MINT by the Dutch Organization for Internationalization in Education: Nuffic, (2007-), *HRK-Audit Internationalization of Universities* by German Rectors' Conference, (2009-), *Assessment of Internationalization*, Accreditation Organization of the Netherlands and Flanders: NVAO, (2011-), etc (NIAD-QE, n.d.). It is well known that the publication of world rankings of universities such as *Quacquarelli Symonds*: QS or *Times Higher Education World University Rankings* has raised interest and attention for the internationalization of higher education.

In Thailand, regarding the internationalization of higher education, the word of *Internationalization* was clearly stated in *the 1st Long-Range Plan on Education Higher Education* (1990-2004), and since 1990, internationalization has been promoted systematically and actively. In addition, *the 7th Education Development Plan* (1992-1996) created an opportunity to promote full-scale internationalization by opening international programs and accepting foreign students from countries around Thailand (Suzuki & Kampeeraparb, 2010, pp.57-58). In *the 2nd 15-year Long Range Plan on Higher Education* (2008-2022), International strategy for Thai Higher Education was developed. International strategies had three strategies: 1) to develop Thai higher education system and administration to enhance the capability of Thai higher education institutions, 2) to raise higher education quality to equate with the international standard, and 3) to improve graduates' characteristics to perform well in national and global communities (Kanvong, n.d., p.3). Furthermore, the operation of the quality assurance system for education after the enactment of *the National Education Act* in 1999 is inextricably linked to internationalization in terms of international validity, which means internationalization of education standards. Thai higher education institutions are currently in a situation where they must improve their status in the international community while promoting internationalization under the global age. In particular, private higher education institutions based on self-funded resources, in view of the strong nature and value of public goods in society, have the challenges of promoting their own internationalization, both home and abroad, according to their own mission and vision (Mori *et. al*., 2019, p.132).

The researcher himself as a department chair, Japanese for Business Communication at a private university, is responsible for cultural exchanges with Japanese people and international academic exchanges with Japanese universities. Therefore, to consider international or intercultural activities of the department seems to be a best opportunity for internationalization of faculty members' capabilities of management, education and research including the internationalization and future direction of private higher education institutions.

2. Previous research

The research products of well-known researchers mentioned in *1.Rationale of research* are said to be basic books related to the internationalization of higher education institutions in the modern period. An overview of each study was summarized in Paige's paper (2005). There are both entire institution and departmental programs for internationalization assessment since the 2000. In addition, the internationalization dimension has been expanded, and specific discussions have been repeated on the contents and methods of internationalization process. The indicators and contents of major internationalization assessments in the world are listed in *Indicator projects on internationalization* (Beerkens *et al.*, 2010). In Thailand, under the leadership of the Office of the Higher Education Commission (OHEC) or the Bureau of International Cooperation Strategy (BICS), indicators for Thai higher education institutions is being discussed and established in partnership with prominent Euro-American institutions (OHEC, 2016; BICS, 2018).

3. Research objectives

The objectives of this research were 1) to grasp the actual attitudes of Thai private higher education institutions toward internationalization, 2) to clarify the current issues through awareness or perception survey related to internationalization efforts by higher education institutions in Thailand, and

3) to gain clues about the future process and progress of private higher education institutions.

4. Guideline for research

As shown in Figure 1, the guidelines in this research set six concepts as the contents of internationalization efforts, namely, 1) *Strategy*, 2) *Rationales*, 3) *International dimensions*, 4) *Funding*, 5) *International exchange*, and 6) *International research*. Thai private higher education institutions, both at home and international, are influenced by Thai society and educational policies or the educational trends and circumstances in the international community. It is in a situation that Thai private higher education institutions cannot ignore them.

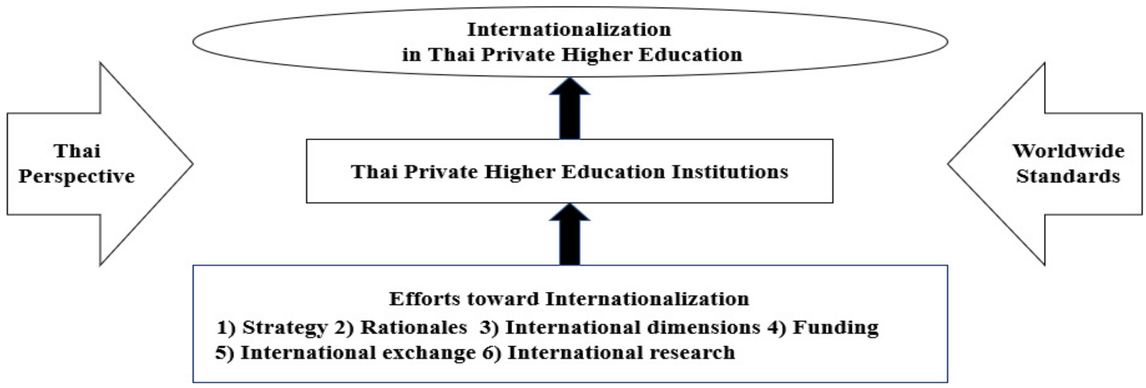

Figure 1 Guideline for research

5. Research methodology

5.1 Research design

The plan of this research was designed as follows: 1) Consideration on the contents, number of questions, and composition of questionnaire (content validity and construct validity), 2) Confirmation of contact information for private higher education institutions, international department and a responsible person, 3) Determining respondents at each institution, 4) How to distribute questionnaire and collect responses, 5) Creating a questionnaire and letter of request, 6) Confirmation of response results (valid or invalid response), 7) Quantify valid response as data (statistical processing), 8) Data analysis of valid responses, 9) Overview of overall characteristics and individual trends through patterns of response behavior by data analysis, and 10) Summarizing the results of analysis for discussions.

5.2 Target group

As of 2018, there are 73 private higher education institutions in Thailand. The breakdown is 42 private universities, 11 private institutes, 20 private colleges (OHEC, 2018, pp28-44). However, 11 institutions (5 universities, 2 institutes and 4 colleges) that did not specify e-mail address were excluded from target group, thus, target group in this research was 62 institutions: 37 universities (59.68%, rounded off to two decimal places, hereinafter the same shall apply), 9 institutes (14.52%) and 16 colleges (25.81%).

5.3 Variable

Explanatory variable means variable that represents some sort of causes, that is, 6 items concerning efforts toward internationalization were regarded as corresponding to this variable. Response variable means variable that represents the results of cause, and 3 response variables were *1 point* (a little), *2 points* (quite a lot), and *3 points* (very much) indicating ordinal scale as qualitative variable for 6 items.

5.4 Research instrument

Questionnaire survey consisted of 7 question items, and questions from No. 1 to 6 were closed-ended questions by choosing single answer from the 3 scales of *1 point*, *2 points* and *3 points*. Question No. 7 was an open-ended question in which the total points of questions from No. 1 to 6 were entered (lowest points = 6 and highest ones = 18). The contents of 7 questions in the questionnaire were adopted from questions that designed by Bureau of International Cooperation Strategy: BICS, OHEC, Thailand (BICS, 2018, pp.75-77). In addition, a full-scale survey using BICS' questions have not yet been conducted.

5.5 Data collection

The questionnaire was sent to each contact person of 62 institutions by an e-mail with *Google form* (as an electronic questionnaire) on July 7, 2019, and the acceptance of response was over a period from July 8 until 15, 2019. The result of collecting responses were the number of receiving reply mail, and the total was 15 institutions (9 universities, 0 institute and 6 colleges). These 15 institutions were the ones that cooperated in response to the questionnaire survey. As for the target institutions, although one university responded anonymously, 14 institutions covered four typical regional divisions in Thailand. That is, there were 9 institutions from the central region (26 provinces), 1 institution from the northern region (17 provinces), 3 institutions from the northeast region (19 provinces), 1 institution from the south (14 provinces). In particular, the central region was occupied by 3 institutions from Bangkok Metropolitan Administration, 4 institutions from Bangkok Metropolitan Region including 5 provinces adjacent to Bangkok, and 2 institutions from other provinces (20 provinces). Cronbach's reliability coefficient was 0.81 (Cronbach' alpha).

5.6 Data analysis

The average value of each question item ranged from about 50% to 70% in all institutions (Table 1). The mean value of each question was relatively higher for universities than for colleges. Question No. 6 was the lowest item in universities (55.67%) and colleges (39.00%).

Table 1 Average points of question No.1 - 7

Question No.	University/$\bar{x}$	College/$\bar{x}$	All institutions	SD
1	2.33 (77.67%)	1.83 (61.00%)	2.13 (71.00%)	0.62
2	2.11 (70.33%)	1.83 (61.00%)	2.00 (66.67%)	0.63
3	2.33 (77.67%)	1.67 (55.67%)	2.07 (69.00%)	0.85
4	1.89 (63.00%)	1.33 (44.33%)	1.67 (55.67%)	0.79
5	2.00 (66.67%)	1.33 (44.33%)	1.73 (57.67%)	0.68
6	1.67 (55.67%)	1.17 (39.00%)	1.47 (49.00%)	0.62
7	12.33 (68.50%)	9.17 (50.94%)	11.07 (61.50%)	3.64

6. Research results

6.1 Strategy

In universities, *2 points* (44.44%) and *3 points* (44.44%) were the same score (Table 2), however, most colleges concentrated on *2 points* (83.33%).

Table 2 Effort toward strategy

	1 point	2 points	3 points	Total
1. Strategy	Little or no strategy	Progressive strategy	Comprehensive strategy	
No. of universities	1 11.11%	4 44.44%	4 44.44%	9 100.00%
No. of colleges	1 16.67%	5 83.33%	0 0.00%	6 100.00%
Total	2 13.33%	9 60.00%	4 26.67%	15 100.00%

6.2 Rationales

2 points were the most in both university (66.67%) and college (50.00%) (Table 3). Universities had *3 points* at 22.22%, while colleges had *1 point* at 33.33%.

Table 3 Effort toward rationales

	1 point	2 points	3 points	Total
2. Rationales	Rationales external and less contextual	Rationales growth driven and aspirational	Rationales are central to institution mission	
No. of universities	1 11.11%	6 66.67%	2 22.22%	9 100.00%
No. of colleges	2 33.33%	3 50.00%	1 16.67%	6 100.00%
Total	3 20.00%	9 60.00%	3 20.00%	15 100.00%

6.3 International dimensions

In universities, *3 points* showed 55.56% (Table 4), while in colleges, *1 point* showed 50.00%. Incidentally, *3 points* at the college were 16.67%. Universities and colleges indicated contrasting results.

Table 4 Effort toward international dimensions

	1 point	2 points	3 points	Total
3. International dimensions	Dimensions constrained by resources	Dimensions are broad and deep	Dimensions are well defined and institution wide	
No. of universities	2 22.22%	2 22.22%	5 55.56%	9 100.00%
No. of colleges	3 50.00%	2 33.33%	1 16.67%	6 100.00%
Total	5 33.33%	4 26.67%	6 40.00%	15 100.00%

6.4 Funding

1 point showed the highest in both university and college, and the total was 53.33% (Table 5). In universities, *3 points* showed 33.33%, on the other hand, there were no *3 points* in colleges.

Table 5 Effort toward funding

	1 point	2 points	3 points	Total
5. Funding	Budget for international initiatives are low	Increasing investment in internationalization	Significant, including third parties and research	
No. of universities	4 44.44%	2 22.22%	3 33.33%	9 100.00%
No. of colleges	4 66.67%	2 33.33%	0 0.00%	6 100.00%
Total	8 53.33%	4 26.67%	3 20.00%	15 100.00%

6.5 International exchange

In universities, *2 points* were the highest, or represented 55.56%, while in colleges, *1 point* was 66.67% (Table 6). In all institutions, 46.67% scored *2 points*.

Table 6 Effort toward international exchange

	1 point	2 points	3 points	Total
5. International exchange	Low numbers of study abroad/exchanges, international students and staff	Good relative percentage of study abroad/exchanges, international students and staff	High percentage of study abroad/exchanges, international students and staff	
No. of universities	2 22.22%	5 55.56%	2 22.22%	9 100.00%
No. of colleges	4 66.67%	2 33.33%	0 0.00%	6 100.00%
Total	6 40.00%	7 46.67%	2 13.33%	15 100.00%

6.6 International research

Although in universities, *1 point* and *2 points* were the same number (44.44%), in colleges, *1 point* was 83.33%, or the highest (Table 7). *3 points* were only one university (11.11%).

Table 7 Effort toward international research

	1 point	2 points	3 points	Total
6. International research	Few international partnerships/ projects	Higher numbers of active over passive partnership/ publications	Mostly active partnership with extensive participation in international publication and global networks	
No. of universities	4 44.44%	4 44.44%	1 11.11%	9 100.00%
No. of colleges	5 83.33%	1 16.67%	0 0.00%	6 100.00%
Total	9 60.00%	5 33.33%	1 6.67%	15 100.00%

6.7 Comprehensive self-evaluation of internationalization efforts

The total number of points from Question No. 1 to 6 was a maximum of 18 points for 1 university and a minimum of 6 points for 1 university and 1 college (Table 8).

Table 8 Comprehensive self-evaluation of internationalization efforts

Points	University	College	Total				
18	1	0	1	9	0	1	1
17	1	0	1	8	1	1	2
14	1	1	2	7	0	1	1
13	2	0	2	6	1	1	2
11	2	1	3	Total	9	6	15

Dividing into three score groups, low score institutions of *6-8 points* (33.33-44.44%) were 2 universities and 3 colleges, intermediate score ones of *9-14 points* (50.00-77.78%) were 5 universities and 3 colleges, and high score ones of *15-18 points* (83.33-100.00%) were only 2 universities. As seen in Table 1, the average values for universities and colleges were 12.33 points (68.50%) and 9.17 points (50.94%), respectively, however, both institutions were included in the intermediate score institutions (*9-14 points*).

7. Discussions and conclusions

As can be seen from *6. Research results* and as shown in Figure 2, regarding the degree of internationalization efforts of Thai private higher education institutions, it was found that some efforts have already been made.

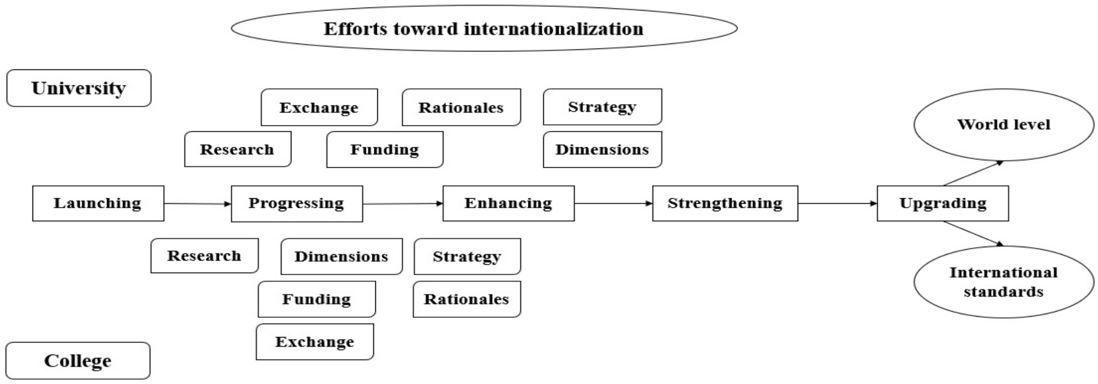

Figure 2 Internationalization efforts in Thai private university and college

At the same time, different development processes were revealed between universities and colleges. Besides that, the degree or extent of efforts also differed in each domain (6 items) of internationalization between universities and colleges. The left-to-right arrow in the middle of Figure 2 means the development stage, and a sequence of development process consisted of five stages: *launching* (or beginning), *progressing* (or increasing), *enhancing* (or expanding), *strengthening* (or prompting) and *upgrading* (or raising the rating). Universities are required to enhance *Rationales* and *Funding*, and strengthen *Strategy* and *International dimensions*. On the other hand, colleges are required to enhance *Strategy* and *Rationales*, and progressing *International dimensions* and *Funding*. The common items of universities and colleges that need to further progress are *International exchange* and *International research*. It is indisputable that further efforts are required to reach world-class level or international standards.

8. Suggestions

8.1 Suggestions for applying research results

Although the extent of efforts towards internationalization of Thai private higher education institutions is still inadequate, in view of the objectives, goals, means or measures, output, and outcome of internationalization, it is expected to incorporate management methods such as SWOT analysis, the PDCA (plan-do-check-act) cycle, roadmap and benchmarking (or best practice), and to formulate short-, medium- and long-term action plans specifically. Based on the results and interpretations of this research, an institution-wide engagement is required by appropriately utilizing these management frameworks and approaches to effectively and efficiently solve the problems. In any case, as shown in Figure 2, paying attention to each of the six aspects of internationalization efforts, it will be essential to raise the level step by step while giving priority in the process of promoting internationalization.

8.2 Suggestions for further research

It is true that the research on the extent of internationalization efforts by Thai private higher education institutions has made it possible to objectively grasp the degree of achievement of internationalization and to clarify the challenges. However, in order to solve and improve the issues, it will be necessary to elucidate the factors and causes that hinder or slow the movement of internationalization efforts for future research.

9. Acknowledgements

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AN EXPLORATION OF TEAM TEACHING IN HIGHER EDUCATION: BENEFITS AND CHALLENGES IN THE EFL CONTEXT IN THAILAND

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ABSTRACT

In the 21st century, collaboration plays an essential role in learning and teaching. One of the effective and innovative teaching approaches is team-teaching which promotes students' learning performance and teachers' professional development. In higher education, a team-teaching approach is rarely employed in Thailand due to a number of factors such as teachers' language ability, confidence, attitudes and beliefs, teaching styles and pedagogical practices (Moore, 2017). This paper attempts to investigate the use of team-teaching approach based on reviews of literature and the authors' own team-teaching experience. Benefits and challenges of team-teaching in the EFL context at the tertiary education level are revealed. Finally, suggestions of the utilization of the team-teaching approach in EFL context in Thai higher education are provided.

Keywords: Collaborative Teaching, Team teaching, Higher Education, EFL contexts

1. Introduction

It is globally accepted that English language skill is both highly valued and in high demand in all the major business sectors, which require people with a high level of proficiency in English. In Thailand, however, there has been an abundance of reports and surveys conducted on Thai English proficiency. Last year, the EF

English Proficiency Index (EF EPI) released their test data collected from 1.3 million adults worldwide with shocking results of Thailand being classified as a country with a low level of English proficiency and with a rank of 64th out of 88 countries (Mala, 2018). This report showed that Thailand had dropped 11 places in 2017. In the last eight years, Thailand was placed mostly at a very low level of English proficiency.

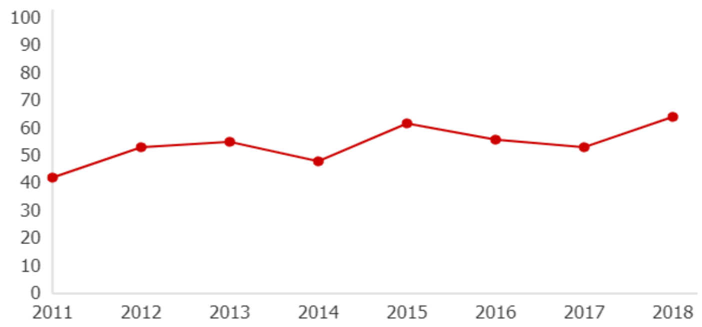

Figure 1: Ranking of English Proficiency of Thailand in the Last Eight Years (EF EPI, 2019)

Figure 1 reveals that Thailand dropped its rank almost every year in the past eight years (EF EPI, 2018). According to Education Minister Teerakiat Jareonsettasin, serious improvement of Thai people in English proficiency is needed (Mala, 2018). He stated that the two key challenges for improvement were Thai teachers' English skills and their teaching approach. With the suggested notion, it is a quest for delving into which approach or model of teaching can assist improving both the teacher's English skills and the students' English proficiency.

In education, constructivism currently plays a major role in students' learning development. This philosophy or theory was founded by Lev Vygotsky (Oxford 1997) who developed three major theories, namely social development theory, zone of proximal development (ZPD) and more knowledgeable other (MKO). These theories have been applied to a number of prominent teaching approaches such as project-based learning and problem-based learning. According to Vygotsky, social interaction plays a fundamental role in the process of cognitive development. He believed that social learning preceded development. Vygotsky's theories emphasize the role of social interaction. It stresses the interaction between people and the culture in which they live. This collaborative learning approach has been applied to collaborative teaching which results in students' achievement (Burton, 2015).

This article attempts to focus on a team-teaching approach and its benefits and challenges for the EFL context in Thai higher education based on its theory, previous research studies, and the authors' current experience of team teaching in an EFL context at a tertiary level. It begins with an overview of team teaching, followed by a discussion on the current status of team teaching in Thailand and its benefits and challenges in the EFL context in higher education in Thailand. Suggestions for the implementation of team-teaching approach in the EFL context in Thai tertiary education will also be provided.

2. Objective

(1) To investigate the utilization of a team teaching approach.

(2) To explore benefits and challenges in applying a team teaching approach to the EFL context in Thai higher education institutions.

3. The background of team-teaching approach

Team teaching is one the approaches under the collaborative teaching (co-teaching) umbrella, which was introduced by Friend & Cook, who are prominent scholars in co-teaching. Therefore, it is essential to initially discuss co-teaching in detail.

Co-teaching has been defined by scholars slightly differently. Friend and Cook (2016) describes the term of co-teaching as the involvement of "two or more certified professionals who contract to share instructional responsibility for a single group of students primarily in a single classroom or workspace for specific content or objectives with mutual ownership, pooled resources and joint accountability." Later, it is perhaps best described by Moore (2017) who clearly stresses "instructional responsibility" for the entire process of teaching, including planning, instructing, and evaluating. He also slightly twists the word "certified professionals" to "the unique abilities of each of the team members." Hence, his definition given to team-teaching is "a collaboration between two or more teachers in which they plan, instruct, and evaluate a group of learners in a classroom environment over a set period of time taking advantage of the unique abilities of each of the team members" (p.121). According to their latest co-teaching approach, Friend & Cook (2016) divided co-teaching into six approaches as shown in Table 1.

Table 1: Overview of six approaches of Co-teaching by Friend & Cook (2016)

Approach	Description
One Teach, One Observe	One teacher plans and teaches the class while the other teacher observes by walking around.
One Teach, One Assist	One teacher plans and teaches the class while the other teacher helps around the class such as distributing worksheets.
Parallel Teaching	Teacher and student teacher plan together but teach in their separate room.
Station Teaching	Both teachers plan and teach their own selected content. The classroom is set up in various stations.
Alternative Teaching	One teacher manages most the of the class while the other teacher works with a small group of students inside or outside of the class for personal needs of the students.
Team Teaching	Both teachers plan and teach the same group of students together in a classroom.

As for team-teaching approach, it is claimed to be an effective means of not only promoting students' learning achievement but also teachers' professional development (Carpenter et al., 2007; William, 2010; Burton, 2015). It also has the least disadvantages (Friend & Cook, 2016). It was initially introduced to teaching handicapped students in an exclusive class (Aliakbari & Nejad, 2013). There is a single goal to this approach which is to provide quality instruction to all students in the classroom. It can be said that this approach is intended to bring teachers together to form a community of teachers sharing support and resources and working toward common goals. To ensure that this goal is achieved, according to Austin (2001), the team of teachers must be optimally prepared for collaboration.

4. The utilization of team-teaching approach in higher education

Based on the authors' investigation, a team-teaching approach is mostly used in basic education. It is rarely implemented in tertiary institutions.

In Nigerian universities, team-teaching is one of the teaching techniques, which has been implemented as it is believed to be an effective and innovative teaching approach in the 21st century (Osuala, R.C. et al., 2015) and an instructional means to help improve quality standards of higher education. Their study aimed to investigate the use of team-teaching in government universities. Even though a team-teaching approach is promoted for teachers to implement in their classroom, the study revealed that the approach was used very minimally in their lecture delivery. Instead, this approach was used more in an evaluation of students' performance. The reasons that hold back the teachers from complying with the policy in using the approach were the teachers' lack of self-confidence to deliver their teaching when their co-teacher was in the classroom with them. Besides, the monitoring and reporting system of the use of a team-teaching approach by administrators was ineffective.

In Thailand, the form of team teaching most often employed in, primary and secondary schools, is a pairing up of a non-native –English native speaker mode, with a Thai teacher working with a native speaker of English in planning and teaching delivery. This mode is most frequently adopted in both government and private schools that offer international or bilingual programs to promote internationalization and international communicative competence (Moore, 2017). The other mode of teaching collaboration is a two Thai Teacher mode, in which one is an in-service teacher and the other is a student intern. Collaborative teaching, especially team-teaching approach, is yet a challenging practice. Based on the authors' experience and reviews of literature, most collaborative teaching approaches are "one teach, one observe" and "one teach, one assist." This is perhaps due to cultural influence, in which a hierarchy or the rank of the persons and seniority play an important role. Within this social system, face saving is an important aspect in establishing a good relationship with others. Therefore, Thai people tend to avoid having conflicts with high ranking people or people with seniority or expressing their own opinions that are in contrary to those of their seniors. They will try to be considerate or "kreng-jai" in their dealing with others. This ego preservation is a fundamental value in Thai mentalities (Komin, 1990 as cited in Pattapong, 2015). Due to this cultural factor, it makes it even harder for Thai university teachers to willingly employ team-teaching approach in their classroom.

Unlike Thai education, team teaching is a common practice in English classroom in Japan, South Korea and Hong Kong. In these countries, Team teaching is implemented in pre-school, primary school, and secondary school levels. According to Carless (2006), the practices of team teaching between native English teachers and non-native L2 teachers in Japan, South Korea and Hong Kong are effective and successful because they have a good relationship with their co-teachers, which is the key of its successful implementation. This good relationship consists of such interpersonal factors as sensitivity, goodwill towards one another, willingness to let go of "points of tension subside," and willingness to compromise (p. 350).

From the discussion above, it can be seen that team-teaching is employed widely in all education stages, except in tertiary education. In addition, the most existing team-teaching technique popularly employed approach in Asian countries only consists of a pairing up of a native English-speaking teacher and a non-native speaking teacher or a local non-native-English- speaking teachers in English class. It is believed that team teaching is an effective and innovative approach in the 21st century (Osuala, R.C. et al., 2015).

5. Benefits and challenges in applying team teaching to the EFL context in Thai~~land~~ higher education

Since there are limited research studies and practices on the team-teaching approach at a tertiary level, both in Thailand and overseas, this section attempts to demonstrate the benefits and challenges for implementing the approach to Thai university teachers based on the findings of previous studies.

A number of studies (Goddard & Goddard, 2010; William, 2010; Burton, 2015), have reported that teacher collaboration results in students' positive outcomes and teachers' values, namely good attitudes towards teaching, teacher efficacy, understanding of their students, and having responsibility. Aliakbari and Nejad (2013) state that although co-teaching is represented as a relatively new approach, its practicality has not been certified for a number of reasons. Co-teaching model may not be suitable for all educational settings. Austin reports that collaborative teaching was perceived to be effective in facilitating the academic development of students. However, he points out a number of recommendations for an effective and successful implement of this teaching approach such as teacher preparation programs—particularly at the pre-service stage, curricula should be relevant to the current trend toward inclusive education, and the support of the school administration. The school districts should be obligated to provide training, guidelines for practice, and support that prepare teachers to serve in inclusive classrooms.

It is evident that teacher collaboration enables teachers to find the resources they need to improve their teaching methods and improve their ability to teach content. Austin (2001) notes that collaboration may not help with student management but the data also revealed that it didn't do it any harm either. In general, there is strong evidence to support the claim that teacher collaboration benefits teachers. In his study, Austin (2001) found the majority of the co-teachers surveyed and interviewed had not volunteered for the experience and yet a major percentage indicated that they considered co-teaching worthwhile. Based on the interview results, Austin noted that the majority of the co-teachers believed that co-teaching contributed positively to the academic development of all their students.

Nor and others (2014) revealed that team teaching helped students to gain interest and motivation. In their study, two teachers were collaboratively working in a classroom. While one teacher was actively leading the class, the other was offering comments, suggestions, or feedback.

Although many previous studies have confirmed the usefulness of co-teaching in an educational setting, the findings of Aliakbari and Nejad (2013) did not seem to fall in line with those previous studies such as Austin (2001) and Aliakbari and Nejad (2013). The results of the study showed that co-taught students did not outperform students who received traditional methods of teaching in the ELT context. Aliakbari and Nejad (2013) concluded that the co-teaching model in this particular environment did not contribute to better results in the grammatical proficiency than did the single instruction approach. Therefore, they argued that the model was not suitable for implementation in every educational system in teaching grammar points. To have a clearer picture of the benefits and challenges of team teaching, Table 1 below provides a summary of the findings regarding the benefits and challenges of team teaching.

Table 1: Benefits and Challenges of Team-Teaching Approach from Previous Studies

Study	Benefits	Challenges
Teachers' Belief about Co-teaching by Vance L. Austin (2001)	-Team teaching facilitates the academic development of students.	-School support -Planning time
"On the Effectiveness of Team Teaching in Promoting Learners' Grammatical Proficiency" by Aliakbari and Nejad (2013)	-Many previous studies have confirmed the usefulness of team teaching in an educational setting.	-Team teaching is not suitable for use in every educational system in teaching grammar points. - Teachers may have to accept their mistakes and respect a colleague's comments and criticism. -Teachers may have conflicts in dealing with each other's interests.
"Team Teaching in Higher Education: The relationship between team norms and effectiveness" by Nor et al (2014)	-Students are stimulated. -Students gain critical thinking skills. -Teachers are more capable in teaching. -Effective team teaching can bring better decisions, solve more complex problems, implement more creative. activities, and build better students' skills	-Teachers need planning time. - Lack of sufficient training and information - Inability to decide what constitutes the work/ ability to disseminate responsibility - Lack of mutual accountability; lack of resources to do the job which includes time; lack of norms that foster creativity and excellence; lack of planning; lack of management support; inability to deal with conflict and lastly, lack of training at all levels of group skills.
"Implementation of Team Teaching in Selected Tertiary Institutions in Nigeria" by Osuala, R.C. et al. (2015)	-An innovative and effective instructional approach in the 21st century. -Collaboration enhances teachers' professional development and students' performance.	-Teachers do not implement team teaching because they lack self-confidence in delivering the lecture, and the monitoring and reporting system was ineffective.

Study	Benefits	Challenges
"Exploring the Impact of Teacher Collaboration on Teacher Learning and Development" by Burton, T. (2015)	-Team teaching enhances learning and teaching.	- The unstructured and inconsistent collaborative practices lead to teachers' negative perceptions towards team teaching.
"The Effects of Collaboration on Teacher Empowerment by Brittany Kay Feinauer (2017)	- A strong increase in three of the four aspects of psychological empowerment, especially perceptions of self-determination and impact.	- There is no correlation between student engagement and teacher collaboration.
"Teachers' perceptions of their collective and individual learning regarding classroom interaction" by Solheim et al (2018)	- Teachers share thoughts and reflections with each other. - Interactions with a co- teacher helps gain practical knowledge. -Team meetings are the best arena to share ideas, thoughts, experiences, reflections and skills.	-Team teaching needs to have time, systematic work and school leadership.
"The Effect of Team Teaching on Academic Achievement of 9th Graders in Science" by Madhuri Hooda, Meghna Sharma (2018)	- The group of students showed significantly higher mean scores in achievement than the group of students taught through traditional methods.	-

Based on the findings shown in Table 1, it seems that team teaching is one of the challenging and promising teaching approaches which enhance both teachers' professional growth and students' learning outcome. However, in order for it to be successful and effective if implemented in Thai tertiary education institutions, teachers will need to have a good relationship with each other, respect each other, and be able to take criticism positively. Most importantly, teachers need to believe in it and possess many suitable traits and soft skills, namely sensitivity, wiliness to overcome criticism, hierarchy and seniority barriers, willingness to handle conflicts, and willingness to compromise and be able to work as a team. Furthermore, support from the administration—both moral and resources—will have to be abundantly provided, and adequate time is allotted.

5. Conclusion

A team-teaching approach is one of the collaborative teaching approaches, which is considered to be most beneficial to students' learning performance and teachers' professional development. In English language education, as well as any other subject matters, team teaching is rarely employed in tertiary institutes in Thailand. One factor which obstructs the implementation of team teaching in the Thai context is personal factors. Because of high ego orientation and the lack of confidence, team teaching would be a major challenge in Thai EFL higher education. Another factor is the lack of understanding on team teaching practice and its implementation. For the approach to be implemented fruitfully, the teachers in tertiary institutes need to be open-minded and have the courage to change the way they teach.

6. Suggestion

As stated by Whitaker (2003), “Teachers should be placed in situation where they can learn from other teachers” (p.32), the authors strongly believe that team teaching is one of the most effective ways to be implemented. To implement team-teaching in Thai higher institutions, teachers need to learn to work in collaboration with other teachers. Besides, it is vital that they have sufficient time for planning and administration support for them to feel empowered and motivated throughout their teaching.

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THE INFLUENCE OF MEDIA EXPOSURE TO THAI DRAMA IN SINA WEIBO ON THE PERCEPTION ABOUT TOURISM IN THAILAND AND THEIR INTENTION TO TRAVEL TO THAILAND AMONG CHINESE AUDIENCE

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ABSTRACT

This survey research aimed to examine 1) the relationship between storytelling techniques in the Thai drama "Love Destiny" and Chinese audience' perception about tourism in Thailand, and 2) the influence of the perception of Chinese audience toward Thailand on their intention to travel to Thailand after viewing the drama. Two hundred respondents were selected using purposive sampling method and convenience sampling. The sample were Chinese Weibo users who have seen the Thai drama "Love Destiny" broadcasted through "Love Destiny" fan club in Weibo. The data was tabulated using percentage, mean, standard deviation. Using spearman correlation and multiple regression to test the hypotheses with significance of 0.05. The findings found that (1) Chinese audience's exposure to storytelling techniques in the Thai drama "Love Destiny" is positively correlated with their perception toward Thailand. Thereinto, the high correlation is visuals, other constructs is all medium correlation; and (2) The Chinese audiences' perception toward Thailand significantly influence their intention to travel to Thailand after viewing the drama. Chinese audience's perception of price and historical-and-cultural sites are significant positive predictors of their intention to travel to Thailand. However, their perception toward safety, friendliness of Thai people, colourful festivals and attractive food are significant negative predictors of their intention to travel in Thailand.

Keywords: Television-induced tourism, Storytelling techniques, Thai drama "Love Destiny", Weibo

1. Introduction

The 21st century is an era of media communication and social media development. According to the statistics of China's Internet Information Center, the number of Internet users reached 731 million in 2016, and the smartphone users reached 795 million who used internet with an average of 4 hours per day. From these statistics, the media is a very important way to get people to receive information. Studies have shown that the use of the media, such as television, newspapers, magazines, or the Internet to develop tourism, has a significant impact on the improvement of the cognitive image of tourist attractions and the perception of access.

In addition to the convenience of geographical location and the beautiful scenery of Thailand, there are many reasons why Chinese tourists have traveled to Thailand. One of the important reasons is that the Thai film and television drama has spread to China and has an impact on the audience. Many Chinese people came to Thailand, because of Thai dramas, especially when they saw Thai drama on the most popular social media, they began to investigate the information of the scenes they had watched and plan to go to those place which were photographed, and when they return, they will share their experiences on social platforms, such as Weibo and WeChat. According to the statistics of the National Tourism Administration of Thailand (Thailand NESDB.2017), the number of Chinese tourists increased by 17.47% in 2013 compared with 2012. The place of visit is mainly the place where Thai dramas are filmed, especially the seaside or beautiful Thai buildings. According to statistics, in 2015, China tourists became the most of foreigners who travel to Thailand, with a total number of 7.9 million. The total number of Chinese tourists visiting Thailand in 2016 reached 8.77 million, an increase of 9.53% compared with last year. Before this, the popularity of Korean dramas has also led to a large number of Chinese people traveling to South Korea, especially the scenes and locations in TV dramas, which has attracted many people's pursuit. Thai dramas have slowly entered China, especially after the rise of social media, the spread of Thai drama is more rapid, which naturally led to the tourism of Thailand.

Past studies have revealed that excellent film and television works can enhance the attractiveness of the location, and promote the number of tourists in the film and television location (Iwashita, 2003), and found that Thai drama are popular In Chinese internet with unique storytelling technique and story plot (Chenyuqi, 2008). However, very limited studies have found that Chinese audience's perception of storytelling technique in Thai drama and their perception of Thailand as a tourist destination after viewing Thai drama.

2. Research Objectives

(1) To examine the relationship between storytelling techniques in the Thai drama "Love Destiny" and Chinese audience' perception toward Thailand.

(2) To examine the influence of Chinese audience's perception about tourism in Thailand and their intention to travel to Thailand after viewing the drama.

3. Research Framework

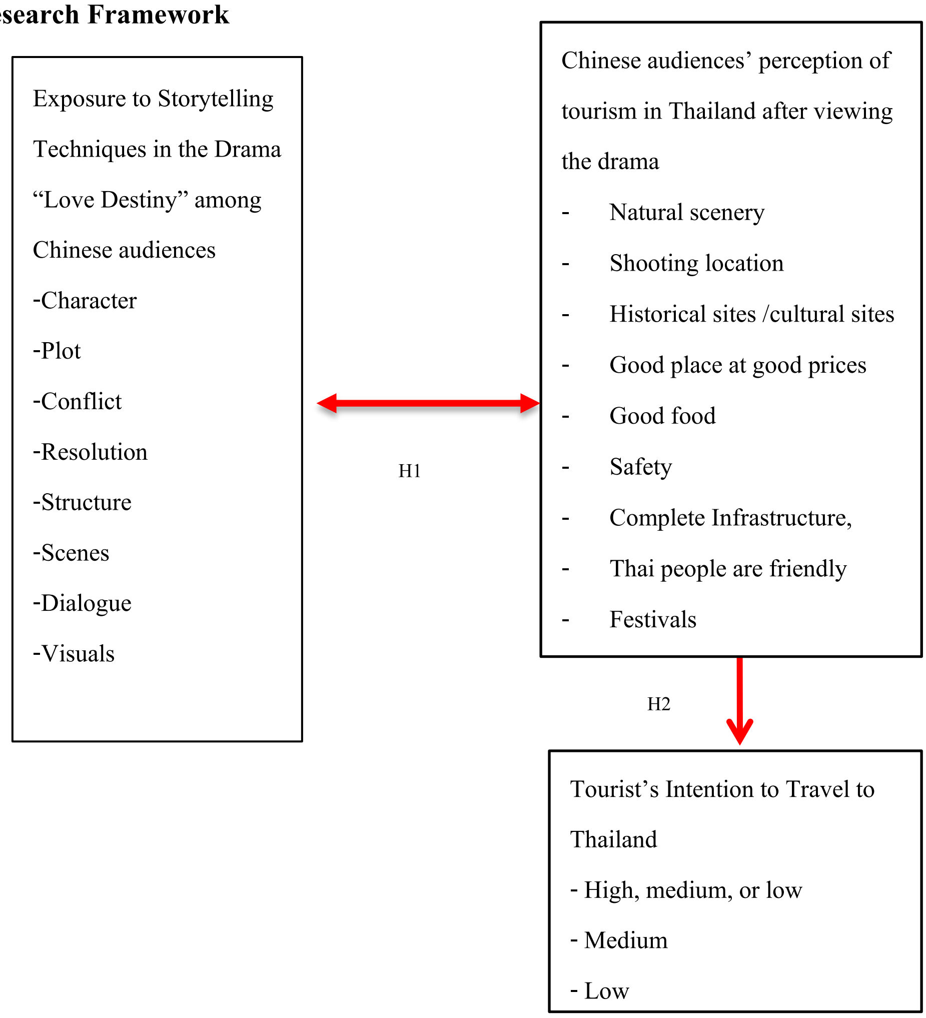

Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

This research is a quantitative research that used survey to examine the audience's perceived to storytelling techniques in the drama "Love Destiny", Chinese perception of tourism in Thailand after viewing the drama and their intention to Travel to Thailand.

4.2 Population and Sample

The population of the research are the Thai drama audience who have watched "Love Destiny" among Weibo users. This group of people is chosen to be the sample of this study that come from different part of China and participated in at least one Thai drama/movie discussion on Weibo. Samples are those Weibo users who have seen at least Thai drama called "Love Destiny" via Thai drama fan club in Weibo. The survey research was participated by two hundred audiences to examine the relationships among storytelling techniques in tourism-induced film "Love Destiny" and the influence of the perception of Chinese audience toward Thailand on their intention to travel to Thailand after viewing the drama.

4.3 Variables

The independent variables were (1) exposure to storytelling techniques in the drama "Love Destiny"; (2) the perception of Chinese audience toward tourism of Thailand after viewing the drama; and dependent variable were Chinese audiences' intention to travel to Thailand after viewing the drama.

4.4 Research Instrument

Part I consisted of 6 nominal-and-ordinal questions, asking the personal date of Chinese audience, including gender, age, personal income, marriage status, educational background. Part II consisted of 16 likert questions, inquiring about Chinese audiences' perception to the storytelling techniques in the drama "Love Destiny", ranging from (5) strongly agree, (4) agree, (3) neutral, (2) disagree and (1) strongly disagree, respectively. And, Part III consisted of 10 likert questions, asking about their perception toward tourism in Thailand. The scale was adopted Zhengyang (2016), , ranging from (5) strongly agree, (4) agree, (3) neutral, (2) disagree and (1) strongly disagree, respectively. The findings has acceptable reliability, because all scale has cronbach alpha higher than .7, including .978 for exposure to storytelling techniques and cronbach alpha .916 for perception to tourism in Thailand, and cronbach alpha .851 for customers' intention to purchase Alibaba products.

4.5 Data Collection

For the 200 questionnaires, the survey was conducted Weibo online survey. That is original questionnaire items are English, which would be translated into Chinese. The researcher sent the questionnaires via online in Weibo. Two hundred respondents completed questionnaires.

4.6 Data Analysis

Data were analyzed using percentage, mean, standard deviation Spearman correlation and Multiple Regression analysis.

5. Research Findings

5.1 Summary on Descriptive Results

Descriptive findings revealed that 36.5% (n=73) of the respondents watched more than 5 Thai drama/movie, followed by those who watched from 2-5 Thai drama/movie (24.5%, n=49), respectively. They had high satisfaction toward storytelling techniques in the drama "Love Destiny" (Mean = 3.81, SD = 1.08). Chinese audience had high intention to travel to Thailand (Mean = 3.68, SD = 1.06). Majority of the audience agreed with all key constructs in storytelling techniques in the drama "Love Destiny", perceived dialogue (Mean = 3.84, SD = 1.19) and scene (Mean = 3.84, SD = 1.17) at the high level, while the media exposure in the drama toward the plot (Mean = 3.83, SD = 1.19), resolution (Mean = 3.83, SD = 1.17), structure (Mean = 3.82, SD = 1.20), conflict (Mean = 3.79, SD = 1.19), visuals (Mean = 3.78, SD = 1.13), and character (Mean = 3.77, SD = 1.14) was perceived also in the high level.

The findings suggested that samples had high media exposure toward storytelling techniques in the drama "Love Destiny" (Mean = 3.81, SD = 1.08). They have high exposure to the following storytelling techniques, including character image created and Thai stars (Mean = 3.86, SD = 1.19) , strong emotion and easy to understand in drama (Mean = 3.87, SD = 1.26), plot is ups and downs at the same time full of drama conflict (Mean = 3.79, SD = 1.27); the story is out of reality and have rich imagination (Mean = 3.81, SD = 1.31), high definition of shooting (Mean = 3.82, SD = 1.27), "Sweet after bitterness" and successful ending (Mean = 3.82, SD =1.30), Thai cultural customs and Thai food in drama (Mean = 3.93, SD = 1.31), dialogue is easy to understand (Mean = 3.88, SD = 1.29), the view of the scenery and the scenes in drama (Mean = 3.82, SD = 1.25), respectively.

5.2 Summary of Hypothesis Findings

Hypothesis 1: Chinese audiences' exposure to storytelling techniques in the Thai drama "Love Destiny" positively correlated with Chinese audience' perception toward Thailand.

As shown in Table 1 , the Spearman correlation analysis found that samples' exposure to storytelling techniques in the Thai drama "Love Destiny" is positively correlated with Chinese audience' perception about tourism in Thailand. (r^2 = .622**, $p< 0.05$, high). The highest positive correlation construct is visuals (r^2 = .623**, $p< 0.05$, high), followed by scenes (r^2 = .600**, $p< 0.05$, high), conflict (r^2 = .585**, $p< 0.05$, medium), dialogue (r^2 = .577**, $p< 0.05$, medium), resolution (r^2 = .559**, $p< 0.05$, medium), character (r^2 = .558**, $p< 0.05$, medium), structure (r^2 = .546**, $p< 0.05$, medium) and plot (r^2 = .519**, $p< 0.05$, medium), respectively. In sum, the media exposure to visuals and scene in the drama was positively correlated with the perception toward tourism in Thailand at the high level, while the media exposure in the drama toward the conflict, dialogues, resolution, character, and structure were positively correlated with the perception in the medium level.

Table 1: Correlation between Chinese audiences' exposure to storytelling techniques in the Thai drama "Love Destiny" and Chinese audience' perception toward Thailand

	Chinese audience' perception toward Thailand
Chinese audiences' exposure to storytelling techniques in the Thai drama "Love Destiny"	.622**
Character	.558**
Plot	.519**
Conflict	.585**
Resolution	.559**
Structure	.546**
Scenes	.600**
Dialogue	.577**
Visuals	.623**

Note: p** < 0.05 $r^2 = r$ (only in Table 1)

Hypothesis 2: Chinese audiences' perception toward Thailand significantly influence their intention to travel to Thailand after viewing the drama.

As shown in Table 2, Multiple regression analysis indicated that the Chinese audiences' perception toward tourism in Thailand significantly influence their intention to travel to Thailand after viewing the drama. As shown in Table 2, Regression analysis revealed that Chinese audiences' perception toward Thailand is significantly influenced their intention to travel to Thailand after viewing the drama at the rate of 25.3% (R^2=.253**, p<.05). When examining the influence of each construct of Chinese audiences' perception toward Thailand, the highest positive predictor were "Good place at good price" (Beta = .210**, p< 0.05), followed by "Characteristic historical and cultural sites" (Beta = .180**, p< 0.05). However, the negative predictors were "Safe" (Beta = -1.41**, p< 0.05), followed by "Thai people are friendly" (Beta = -.111**, p< 0.05), "Colorful festivals"(Beta = -.078**, p< 0.05), ", and "Attractive Thai food"(Beta= -.044**, p< 0.05), respectively.

Table 2: Regression Analysis of Chinese audiences' perception toward Thailand as their intention to travel to Thailand after viewing the drama

Model Summary[b]										
Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.503[a]	.253	.214	.94701	.253	6.415	10	189	.000	1.876

Remark: 1. Predictors: Beautiful natural scenery, Beautiful film and television shooting location, Beautiful film and television shooting location, Good place at good prices , Complete infrastructure, Attractive Thai food, Safe, Thai people are friendly, Colorful festivals, I like Thailand

2. Dependent Variable: Tourist's Intention to Travel to Thailand

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	1.999	.248		8.063	.000
	Beautiful natural scenery	.070	.093	.083	.749	.455
	Beautiful film and television shooting location	.111	.095	.130	1.172	.243
	Characteristic historical and cultural sites	.151	.099	.180	1.521	.130
	Good place at good prices	.124	.100	.149	1.242	.216
	Complete infrastructure	.177	.093	.210	1.090	.058
	Attractive Thai food	-.039	.095	-.044	-.407	.685
	Safe	-.120	.101	-.141	-1.191	.235
	Thai people are friendly	-.090	.104	-.111	-.868	.386
	Colorful festivals	-.069	.089	-.078	-.772	.441
	I like Thailand	.145	.092	.171	1.568	.118

Dependent Variable: Tourists' Intention to Travel to Thailand

6. Discussion

6. 1 Discussion for summary of descriptive findings

According to the data analyzed, the study pointed that majority of the respondents agreed with the statements about their perception toward Thailand after viewing the drama. Characteristic historical and cultural sites is the most significant predictors, followed by good place at good prices, attractive Thai food, love Thailand, safe, beautiful natural scenery, beautiful film and television shooting location, colorful festival and Thai people are friendly, respectively. However, the lowest predictor is complete infrastructure. In sum, the media exposure to “Good place at good prices”, “I like Thailand”, “Characteristic historical and cultural sites”, “Thai people are friendly”, “Beautiful natural scenery”, “Beautiful natural scenery”, “Safety”, “Beautiful film and television shooting location” and “Attractive Thai food” in the drama was positively correlated with the perception toward Thailand at the medium level.

The study also pointed out that Chinese audiences’ intention to travel to Thailand indicated that majority of the sample had high intention to travel to Thailand. The result showed that the Chinese perception of Thailand after viewing the drama did influenced the tourist’s intention to travel to Thailand. The results coincided with Riley and Baker(1998) , which found that because tourists are familiar with the film in advance, they need to have “a confirmation” and “have an expectation” for these places, and traveling to the film and television shooting place was the role of “movie” and “media exposure”.

The findings revealed that among all storytelling techniques in Thai drama “Love Destiny”, the visuals and scenes have the high media exposure, which coincided with Riley and Van Doren(1992), which found that the scenes and props used in film and television can help potential tourists through empathy produced a certain sensory and emotional perception of the tourist destination, thereby generating tourism motivation and facilitating tourism behavior.

The finding revealed out that among all the medium level perception toward tourism in Thailand. characteristics of historical and cultural sites is the highest predictors. These results coincided with Tooke and Baker (1996) who claimed the theme, characters and style, visual and artistic expressions are used to create a credible environment through natural and human landscape. It is this typical environment that has affected the visitors’ vision to some extent through special effects processing.

Hypothesis 1 results revealed that exposure to storytelling techniques in the Thai drama “Love Destiny” is positively correlated with Chinese audiences’ perception toward tourism in Thailand. Thereinto, the high correlation is visuals, other constructs is all medium correlation. These results revealed that excellent film and television works can enhance the attractiveness of the location.

These findings coincided with the study conducted by Tooke and Baker (1996) which found that the image of film and television drama can be divided into “natural” image and “induced” image. The natural image is the sum of all the information. The tourist destination is being broadcasted in TV drama or film. According to the theme, characters and style, visual and artistic expressions are used to create a credible environment through natural and human landscape. It is this typical environment that has affected the visitors’ vision to some extent through special effects processing. The findings supported the assumption of the Tourist Destination Image Theory which posited that a collection of people's ideas and impressions about destinations, and played an important role in the destination selection and decision-making of tourists. The findings suggested that the highest correlation construct between Chinese audience' perception toward Thailand and Chinese audiences' exposure to storytelling techniques in the Thai drama "Love Destiny" is "Good place at good prices" in the medium level; however, the lowest is "Attractive Thai food". These results revealed that the content of the film greatly affects the formation or change of the destination image of tourists significantly. These findings coincided with the study conducted by Reynolds (1965) which pointed out that compared to the fact itself, imagery plays a very important role in people's lives. People are more often reacting to the facts they believe, so images have a major impact on people's behavioral decisions, in other words, people rely on their subjective values and knowledge as a tool to communicate with the external environment.

Hypothesis 2 results suggested that the perception of price and historical and cultural sites are significant positive predictors. However, their perception of safety, Thai people are friendly, festivals and food are negative. These findings coincided with the study conducted by Chenyuqi (2008) which found that the storytelling of the Thai drama is characterized by "Sweet after bitterness". In the first half of the Thai drama, the male and female protagonists have a deep hatred in the beginning. The plot is a process of mutual torture with hatred. It mixed hate and love, and the audience in the process of watching can feel a kind of love between hate. In this process, the writer often uses the "Love you, torture you" theme. The characters of the Thai drama are bright and strong, and the performance style of the actors is more exaggerated. The expression of the five senses is used to complete the emotional expression. With the vicious face lines and intense background music, it is easy to present hatred and tension. Because in Thai drama "Love destiny" is to shape the image of the bad guys in this way, this is the performance characteristic that has been formed since the long-term development of Thai drama. Thailand, which believes in Buddhism, hopes to amplify the ugliness of the evildoers in this way, thus acting as a warning. However, for Chinese audiences, such performances make the Thai people's image in the play seem unfriendly. The related plots about car accidents, curses, and wars may result in lower audience consent to safety. At the same time, there is no emphasis on Thai food and festivals in "Love destiny". The findings supported the assumption concept of the theories of branding as a tourism destination which posited that tourists' viewing, acceptance and recognition of film and television shooting place are significant strategy for destination marketing, which is gradually accepted by tourists during the viewing process. In this process, what happened in psychology is called "empathy, mutual sympathy, and resonance". The viewers can experience the feelings of the movie's protagonist characteristics in the drama, generating their high brand recognition for the destination too.

7. Suggestions for Further Research and Future Application

(1) Suggestions for the future application

1. The research results showed that the film's storytelling techniques played an important role in establishing the image of the destination and the willingness to travel. On the one hand, positive destination

images can enhance or translate into willingness to travel, so positive destination perceptions and positive emotional imagery must be planned and managed strategically. Therefore, the destination image that needs to be publicized should be naturally integrated into the plot and the scene strategically to promote tourism in Thailand. The reason is because film-induced tourism is an effective strategy to promote positive imagery for tourist destination in Thailand, thereby conveying to the audience and creating the audience's interest and preference for the tourist destination. Positive psychological feelings such as interest, pleasure, etc., ultimately produce a willingness to travel.

2. On the other hand, the image of the destination established through the series will directly affect the willingness to travel, and enhance the effect of film transmission by enhancing the visibility of the story, shooting techniques, star effect, etc., and will also increase the popularity of the destination.

(2) Suggestions for the further research

1. This kind of research cannot completely exclude the influence of the respondent's own inherent imagery factors on travel intentions in the survey design. Therefore, it is recommended to conduct a before-and-after viewing the Thai drama to monitor the personal bias, attitudinal factors, or inherent factors on travel in Thailand.

2. This kind of research requires more time in order to collect more than one type of Thai drama/movies' data because need to have more type such as LGBT dramas, history dramas, family-ethics dramas.

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APPROACHES FOR CREATIVE CULTURAL TOURISM DEVELOPMENT IN BANWAN COMMUNITY, NAMKAM SUB-DISTRICT, MUANG DISTRICT, SISAKET PROVINCE

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ABSTRACT

This research aims to 1) review tourism resources in Banwan Community; 2) analyze SWOT of tourism development; and 3) create the way of creative cultural tourism development. The author applied qualitative research for this paper such as Community Study Checklists, Tourism Resource Audit and In-depth Interview together with community residents' participation.

The results showed that:

1) The outstanding tourism resources of Banwan Community are such as Pratatsupannahong Temple where is the starting point of Buddhist cultural tourism; Lao Tribe cultural demonstration; traditional weaving;basketry; architecture; and food processing. In addition, the wooden bridge (Khua) where tourists can bring locks to hook on the bridge as praying for forever love; and, every Sunday, there is community activity: giving alms to Buddhist monk and traditional clothe wearing. Also in the future, this community is going to run non-alcoholic drink homestay.

2) From SWOT analysis, it plays as the main role for planning to develop creative cultural tourism. Strength is appropriate location – easy to reach, outstanding cultural capital, unity community. Weaknesses are lack of tourism planning, lack of digital marketing planning and lack of knowledge management. Opportunity is the global stream of creative cultural tourism. Threats are economic crisis and country's infrastructure –which can be the restriction of reaching this place.

3) The author would like to present the way of creative cultural tourism development by applying the strength of community culture to integrate with received opportunity to create proactive strategy such as branding, and marketing planning which help community to add value by creative economic, and then, make the integration between community's weaknesses and opportunity to get recovery strategies such as knowledge base creation,

creative tourism route definition together with network making and community strengthening including planning for future crisis.

Keywords : 1. Creative Tourism 2. Development of Cultural Capital 3. Banwan Community

1. Introduction

Tourism is one of industry which grows up rapidly. Also, it is the main industry of world economic. From the report of World Travel and Tourism Council (WTTC), it referred that tourism industry made 8,300 billion dollars in 2018 – it's 10.4% of world GDP; and this industry created 313 million positions of jobs – it meant 10.4% of world employment. In addition, tourism industry drove 882 billion dollars of investment – 4.5% of whole world investment(World Travel and Tourism Council, 2018).

The resources of tourism industry are cultural and resource capital around the world, especially for cultural capital such as intellectual property which was inherited to each generation, it is invaluable resource for creative tourism, especially for Thailand. Thailand has cultural capital and several valuable wisdoms which can be integrated with creativity, knowledge innovation and new technology to create outstanding products and tourism services which increase value to be sustainable tourism development.

Sisaket is located in the South of North Eastern Region. This province is known as Khmer Castle Land. This place used to be ancient Khmer's era where used to be civilized – we can see and learn from historical remains. Historical sites become important attractions – Provincial land marks, especially for Watsakampaengyai Stone Castle where is well known by domestic and international tourists. In addition, there are historical sites, and art and cultural attractions such as Banprasart Stone Castle, Pratatruengrong Pagoda and natural attractions: Huaychan Waterfall, Phulaor Waterfall and SamrongkiatWarterfall (Sisaket Provincial Office, 2016)

Banwan Community, Namkam Sub-District, Muang District, Sisakaet Province, is a community which has developed through historical period lastingly. The residents here are Lao Tribe, and they built Banwan Temple (Pratatsupannahong Temple) to be Buddhist place for the village. This community has been trying to conserve way of life and community culture: Buddhist way, culture, and Lao Tribe living. There are products by local wisdom: Khit textile, bamboo basketry, food processing and so on. These impressions can be developed to be community tourism. Then, Banwan has been changed from agricultural village to be cultural tourism community. As well as being chosen as one of the 5 communities in tourism. Each year there are approximately 50,000 tourists and the trend is increasing.

However, successful community tourism development should be run on clear way of tourism development together with outstanding culture capital and community participation in creative conservation and value adding of culture capital. Community should have chance to participate in attraction development including tourist effect protection – decadence of tourism resources. Approaches for Creative Cultural Tourism Development in Banwan Community is a joint finding of all sectors in tourism planning and development. In order to be proud of local people which will lead to sustainable tourism development of the community.

2. Research Objective

1) To review tourism resources in Banwan Community, Namkam Sub-District, Muang District, Sisaket Province.

2) To analyze SWOT ofcreative cultural tourism development in Banwan Community.

3) To create Approaches for creative cultural tourism development in Banwan Community.

3. Research Framework

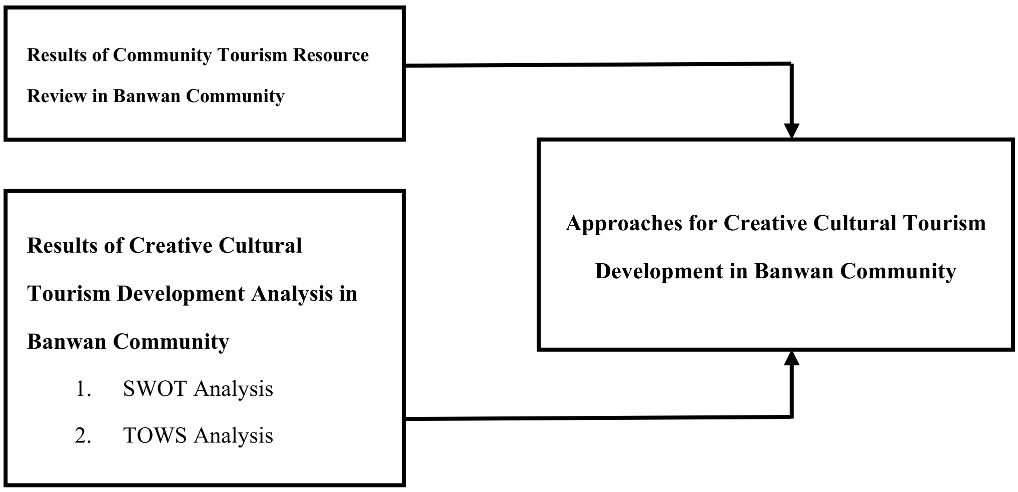

Figure1. Research Framework

4. Research Methodology

4.1Research Design

For this research, the author The researcher has Literature review of the study, including concepts, Sustainable tourism, Community - Based Tourism Concepts, cultural tourism Concepts, creative tourism And marketing for tourism. Applied to qualitative research and Participatory Action Research (PAR) to review internal condition of community to find strengths and weaknesses for current community tourism development.After that, the author analyzed external factors to find opportunities and threats for community tourism development. After the author got data from SWOT, the data were interpreted into TOWS Analysis to find the way of creative cultural tourism development in Banwan Community in the future.

4.2 Population and Sample

Populations of this research were government agencies, private organization and residents who had a share and participation in Banwan community tourism development.

Sample group was 24 key Informants (McMillan & Suhumacher, 1997: 534) selecting by specific sampling to gain the information and opinion from government agencies, private organization and residents.

4.3 Research Instrument

The author surveyed the area of Banwan community Namkam Sub-District Muang District Sisaket to study the community and review community tourism resources by applying qualitative research tools: Community Study Checklists and Tourism Resource Audit. In addition, the author applied in-depth interview to find the way of community tourism development.

4.4 Data Collection

The author gathered qualitative data from 24 key Informants selecting by specific sampling to gain the information and opinion from government agencies, private organization and residents. By applying in-depth interview with questionnaires, observation and small group discussion together with Participatory Action Research (PAR). For qualitative data checking, the author applied Data Triangulation (Supang Chantawanich, 2014: 128-129)

4.5 Data Analysis

The author analyzed qualitative from the survey, observation and interview documents. In-depth research And analyze content by organizing data set the code of the data, explain, interpret to be compiled as a Approaches for the development of creative cultural tourism in Banwan Community, Namkam Sub-District, Muang District, Sisaket Province.

5. Research Findings

The results of the documents, survey, observation and in-depth interview found that Banwan Community, Namkam Sub-District, Muang District, Sisaket Province. in the past, this community used to be under Namkam Village. This area has sub-tribes who moved from the North and the East, and built their houses – called Tub – near small pond, it was called Nongtubkao. Then, they found the new area where had more water resource – far from the old place about 1 kilometer, and moved to that place - where was called Namkam Village following the name of that pond (Sisaket Province, 2016: 123). After the increasing of population, some of residents had to spread around for village extension, and founded new village– where there were a lot of special aloe, it was called Wanhom, which was herb for medical treatment. So, residents named this new village as Nonsuanwanhom Village (Nuamrat, 2018), and then, this village was called Banwan up to present.

1. The Result of Banwan Community Tourism Resource Review

The outstanding tourism resources of Banwan Community are such as Pratatsupannahong Temple (Banwan Temple), there is a very beautiful temple hall on a massive boat in the water, where is the starting point of Buddhist cultural tourism such as giving alms to Buddhist monk, praying to Buddha's bone remain, Lao Tribe's culture conservation: Lao art and culture demonstration, ancient textile weaving, basketry, architecture and food processing, and in addition, some parts of Pratatsupannahong Temple's area is applied to be local market where there are several products: community products, organic vegetable and seasonal processing food. This community built wooden bridge (in Lao dialect called Khua) to cross canal and rice field, tourists can walk across the bridge to see the beautiful rice field. Besides seeing beautiful rice field, tourists can take locks to hook this bridge to pray for forever love. And on every Sunday, this community has many activities: giving alms to Buddhist monk and traditional cloth wearing (Sarong for male and Sin for female) atthe temple and wooden bridge. In the future, this community plan to run non-alcoholic drink homestay for tourists by applying Buddhist believe and sufficient economy principles to live their lives.

2. The Results from SWOT Analysis for Creative Cultural Tourism Development in Banwan Community

1. Internal Condition Analysis for Current Creative Cultural Tourism Development in Banwan Community

1.1 **Strengths**: Creative cultural tourism encouragement factors for this community

1.1.1 Location: Muang District – easy to reach and easy to connect to other attractions in this province

1.1.2 Outstanding cultural capital, especially for the legend of Naga in Pratatsupannahong Temple

1.1.3 Interesting culture and Lao Tribe’s way of life

1.1.4 Unique traditional festival

1.1.5 Unity community and expectation to develop community tourism

1.2 **Weaknesses**: Disadvantage factors which affect creative cultural tourism development in this community

1.2.1 Lack of knowledge, culture and local wisdom management to create up to date cultural data base for tourists

1.2.2 Lack of digital marketing planning which attracts domestic and international tourist

1.2.3 Lack of meaning conveying planning for culture, local wisdom and community knowledge

1.2.4 Loss from integration creative cultural tourism management system development

1.2.5 Lack of self-esteem in new generation residents

2. External Condition Analysis for Banwan Community Creative Cultural Tourism Development in the Future

2.1 **Opportunities of creative cultural tourism development**

2.1.1 The global trend wants to experience the deep culture of the community

2.1.2 The global trend wants to experience Buddhist way tourism for improving tourist’s mind

2.1.3 The global trend wants to experience to develop creative cultural tourism in order to add community economic value

2.1.4 Encouragement from government agencies for community tourism such as Innovative Way and Secondary City Tourism

2.1.5 Continuous Policies from Sisaket Agencies to encourage Banwan community tourism

2.2 **Threats of creative cultural tourism development**

2.2.1 Global and regional economic crisis

3. Approaches for Creative Cultural Tourism Development in Banwan Community

From small group discussion to brainstorm to find the way of creative cultural tourism development in Banwan community, the author did TOWS Analysis to define development strategies by paring 4 factors: strengths, weakness, opportunities and threats. Then, the author defined 4 types of creative cultural tourism development strategies as follow:

3.1 Proactive Strategy (Strengths -Opportunities: SO)

3.1.1 New product and tourism service creativity by applying cultural capital to redesign for beautiful, contemporary and attractive subjects

3.1.2 Brand making to cap outstanding cultural capital with uniqueness and attractiveness for tourists

3.1.3 Marketing planning which connect cultural capital to creative economic because of national agenda about creative economic encouragement

3.2 Recovery Strategy (Weaknesses–Opportunities: WO)

3.2.1 Cultural knowledge data base making of Banwan community to attract tourists and urge self-esteem of new generation residents

3.2.2 Strategy making to cap cultural capital

3.2.3 Sustainable cultural capital conservation and recovery plan making

3.2.4 Definition of traveling route and creative conveying of route meaning

3.2.5 Funding for internal and external community tourism development from government agencies, private organization and SMEs

3.3 Community Stability Protection Strategy (Strengths–Threats: ST)

3.3.1 Network creating for creative cultural tourism in nearby communities to make connective tourism

3.3.2 Encouragement to live simple lives following Buddhist way and sufficient economy philosophy

3.3.3 Conscience creation for tradition, way of life and community culture conservation which far from distortion by globalization

3.3.4 Cultural and natural condition conservation by avoiding the effect from tourists as much as it should be

3.3.5 Community entrepreneur encouragement to gate sharing from creative tourism development

3.4 Preparation Strategy (Weaknesses–Threats: WT)

3.4.1 Economic crisis response plan

3.4.2 Continuous community resident competency development to prepare for serving international tourists in the future

6. Discussion

1st Objective:Tourism Resource Review in Banwan Community

The author studied Banwan community by applying qualitative research withCommunity Study Checklists and Tourism Resource Audit to understand the contexts of this area and community including community cultural capital to be prepared for coming participatory action research following Teerapattra Eakpachaisawad (2011: 4-7). She argued that community study with each dimension help us to connect each dimension phenomena to be holistic because community study is integration which is the beginning of community tourism development planning. It is community requirement than researcher's requirement. Also, tourism resource review lead to SWOT Analysis which we can use the data to define the way of development. Tourism development following the process of System Theory must, at first, have input factors. In other words, result from community tourism resource review is input factor for community tourism development process (Niparat Saiprasert, 2010: 23).

2nd Objective: SWOT Analysis for Creative Cultural Tourism Development in Banwan Community

Banwan Community has outstanding cultural capital such as Buddhist culture and Lao Tribe's culture. Integration between cultural capital and creativity including the global stream about creative tourism which tourists want to touch in-depth culture: way of living and local wisdom (Worawit Arirutcheeworakul, 2010: 22) by improving the weakness of planning, creative cultural tourism management and marketing planning – especially for digital marketing. For future threats, community should have plan for any crisis which affects tourism.

3rd Objective: The Way to Develop Creative Cultural Tourism in Banwan Community

The way of creative cultural tourism development has to create new products and tourism service which integrate creativity together with outstanding cultural capital – redesign for better and attractive (Niswan Pitdamrong,2010: 13-17). Cultural capital is precious resource which reflects Thai, civilized culture, classy living that we can apply the creativity with technology innovation, also, this can drive Thailand economic based on self-reliance, strengthen community economic and build up self-esteem about home land, in addition, tourism network creation. We can have community knowledge data base creation to conserve and increase value of cultural capital including tourism development funding from all organizations. It is relate to KittiponJaiboon's thought (2011: 6)

7. Suggestion

1) In this research, the researcher has Approaches for Creative Cultural Tourism Development in Banwan Community. Which, If applied to other communities May have to be optimized for each area.

2) For national agenda, the government should define national cultural policy or found national cultural organization which focuses on national cultural content and community content with entertainment industry to export Thai culture to international sight and develop Thailand tourism.

3) For local level, there should be explicit and continuous operation plan to develop creative cultural tourism for province, district, sub-district and village – each community should define their own tourism route.

8. Acknowledgement

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SUSTAINABLE TOURISM DEVELOPMENT IN NAKHON SI THAMMARAT PROVINCE: TOURISM RESOURCE AUDIT

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ABSTRACT

This paper is part of the main project conducted under Philosophy of Doctoral in Tourism Management, College of Management, University of Phayao, Bangkok, Thailand. The part of the main objective to study Tourism Resources Audit in Nakhon Si Thammarat Province (NST). The participants were 32 persons from 4 groups of population- Government Department; Private Department; Local People; and Tourists by in-depth interview, then content analysis and descriptive for 5 categories of tourism resources as per resulted detail: 1) natural resources-Khao Lung National Park; Khanom Beach; and Pak Panang Seashore and Talumpuk cape. 2) cultural resources-Phra Mahathat Wora Maha Viharn Temple; Seasoning Fruits and Local Foods; Chedi Temple or Ai Kai Temple. 3) event resource-Hae Pha Kuen Tart; Hae Nang Dhan Mini-light and Sound; and Boon Sard Duen Sib. 4) activity resources-Natural trails; Souvenir Shops; and Cultural trails. 5) service resources-Accommodations; Reception; and Public Transportation.

Keywords: Tourism Development; Sustainable Tourism; Tourism Resource Audit

1. Introduction:

The World Tourism Organization (UNWTO) is forecast, in the 2030 era, an amount of the international tourist arrivals global is approximately 3.3% a year, compared to an approximately of 3.9% in the 2010 era. The tourism is a major activity establishing an economic sector that is responsible for 9% of worldwide GDP (Gross Domestic Product). In current years it has seen vital growth which is forecast to continue, unusually in the third world countries which have seen a rate of increase in visitor arrivals that considerably exceeds the world average. (UNWTO, 2011).

The United Nations was concerned about climate change, which is one of the greatest challenges of our time and its adverse impacts undermine the ability of all countries to achieve sustainable development. Increases in global temperature, sea-level rise, ocean acidification, and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries. The New Agenda builds on the Millennium Development Goals and seeks to complete it. (UNWTO, 2013).

Many developing countries provides a source of traveler exchange incomes. Thailand is a country, which arose 20 years' strategic plans for sustainable development, includes sustainable tourism as contributing to green growth. Thai Government begins to present a Methodology for evaluating the position of sustainable tourism. The framed point to five pillars which encapsulate the key dimensions and theme of sustainable tourism.

The first of the five pillars in the Methodology concern tourism policy and governance. The second pillar covers economic performance, investment, and competitiveness. The third pillar covers employment, decent work, and human capital. The fourth pillar covers poverty reduction and social inclusion. The last pillar, covers the sustainability of the natural and cultural environment. (Office of the National Economic and Social Development Council, 2017).

The concept of sustainable tourism development is based on balance economic, social and cultural development and conservation for the environment, which enables the development of the same or higher level. The process of sustainable development is allowing development to be achieved without degradation or depletion of those resources on which it is based. (Najdeska & Rakicevik, 2012)

In Thailand, sustainable tourism is an outlying achievement goal. The purpose of the study is to enhance common understanding and commitment to tourism resources in Nakhon Si Thammarat Province (NST). The site is located in southern Thailand as a destination for tourists around the world. There are variety of tourism attraction, the number of type categories and subcategories to describe them is virtually endless.

2. Research Objective:

To Study tourism resources to categorize tourist attraction in Nakhon Si Thammarat Province into 5 categorizes: natural resources, cultural resources, event resources, activity resources, and services resources.

3. Research Framework:

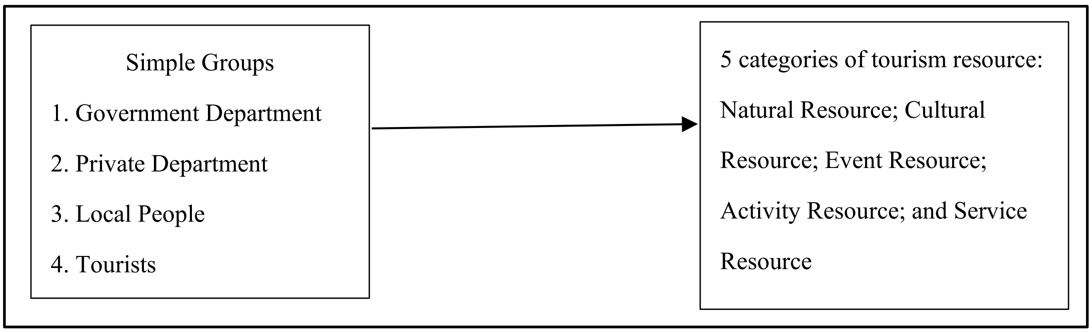

Figure 1 Research Framework

4. Research Methodology:

4.1 Research Design

The study area is tourism resources audit in Nakhon Si Thammarat Province, Thailand. According to quality research tool as per in-depth interview, in five types of categories;

Table 1: Categories of tourism resource audit (Dhamabutra, 2015)

Type of Categories	Description of details
1. Natural Resources	**Flora** - forested areas; specialist farms; trees; wilderness; wildflowers; rare/endangered; spices & herbs. **Landscape** – beaches; causeways; caves; coral reef; unique landforms; geological formation; gorge/ canyon; islands; mountains; plains; sand dunes; semiprecious gemstones; swampland; valleys & plateau; volcanoes. **Fauna** – birds; insects; wildlife; marine mammals; domesticated. **Climate** – seasonal: spring, summer, autumn, winter; arid; temperate; tropical; continental; coastal; alpine; wind. **Water** – rivers; cataracts; lakes; estuaries; thermal spring; geysers; springs/well; waterfalls; ocean/sea; snow/ice.
2. Cultural Resources	**Religious** – mosques; synagogues; temples; churches (frontier/pioneer); burial grounds; shrines; pilgrimage site; other religions. **Heritage** – castles; forts; historic birthplace; historic building; historic home; historic setting; museums; science/ technical; monument; ancient/ derelict ruins; interpretation centers; landmarks; battle sites; ancient roads or paths. **Other** – ethnic celebrations; indigenous culture; archaeological sites; TV series location; famous residents; folklore; local traditions. **Festivals** – music; dance; wine/food; literature/poetry. **Tournaments** – sport; athletics; racing.
3. Event Resources	**Business** – trade shows; sports equipment; conventions. shows/ contests; fishing contest; regattas; air show/ tattoos; military displays; photo exhibitions; celebrity visits.

Table 1 (continued): Categories of tourism resource audit

Type of Categories	Description of details
4. Activity Resources	**Recreational** – children's playground; golf-course; ski hill/dry slope; tennis-courts; nature trails; hiking trails; horse trails; bike trails; bowling greens; canals; roller-blading; national games; flying/gilding; hang-gliding; parachuting; ballooning; horse riding; hobby/skills; view points; sports stadium; playing fields; ice rink; swimming-pool; water sport; hunting & shooting; caving/potholing; archery; off-road driving; fad & fashion activities; bungee jumping; white-knuckle activity. **Facilities** – winery; zoo/seal life center; wildlife sanctuary; game park; farm park; aviary; aquarium; arboretum; botanical garden; planetarium; theme park; water; mini/crazy golf; industrial tours; dockyards-naval; historic; wharves/piers; railways; parks. **Transport** – access; local airport; stables/equestrian.
5. Service Resources	**Accommodation** – hotel; B&B/guest-house; self-catering units; caravans/trailers; educational/dormitories; guest ranch; farm cottages; time share; inns & pubs; motels; youth hostels. **Reception** – information center; interpretation; town trails; language services; pedestrian signposting; display board maps; tours; image/town theme; community attitudes; government policy; tour operators. **Catering** – bars/pubs; bistros/wine bars; coffee shop/tea room fast food; takeaway/takeaway/takeout; fine dining; family restaurants; ethnic cuisine; international cuisine; international cuisine; picnic sites; street vendors; self-service. **Services** – boatyard; car repair; petrol stations; banks; police/security; medical services; veterinary services; general hardware; domestic supplies; communications; energy supply; water supply; sewerage services.

However, for the sake of simplicity, the tourism-based: Natural resources, Cultural resources, Events resources, Activities resources, and Services resources. This paper shows the first stage of the audits should identify what research sites has to offer. The second stage is designed to help further develop a general image of where the destination broadly fits within the wider tourism marketplace, which will be used for statistical and questionnaire for another part. Of the main research.

4.2 Methodology and Data Collection

This paper is a part of the main project in which it purposes to use tourism resources for tourism travel plans. A destination of the tourism resource base is the essence of the location's tourism appeal. Tourism resource are all, and any, of those features which draw people into a destination. They form the core of visitor attractions, but also include other services and facilities which cater to accommodate and entertain tourists while in the destination area. Tourism resources represent the supply side of the basic supply-and-demand equation, which needs to be to match with market demand to develop a successful tourism destination. Tourism resources come in all shapes and sizes, and most features of an area can be considered part of the overall tourism resource base of a destination. They include elements of the natural and man-made environment, festivals and events, activities, purpose-built facilities, hospitality, and transport services. These features are classified as either principal or supporting resources. (Dhamabutra, 2015)

The cause of destinations actually has a principal resource, but rather an amalgam of supporting resources which every community in each province must manage their own principal resources by combining supporting resources with the principal resources. On their own, environment setting, local culture or the services available may not be enough to draw visitor in, but the combination will form an attraction and become the principle resource. In many towns and smaller cities, it is often this amalgam of resources that creates the tourism appeal or image which serves to attract people to that particular place.

The following sections are examples of types of features which could be considered under each of these five categories. The table is not complete yet. Later on, each destination will need to adjust or add to their own tourism setting as appropriate. This study will also need the involvement of Nakhon Si Thammarat Province stakeholders.

Table 2: List of Simple group for in-depth interview

Types of Simple Group	Number of Simple Group
Government Department	8 persons
Private Section	8 persons
Local People in NST province	8 persons
Tourists	8 persons
Total	**32 persons**

The in-depth interview was designed using simple groups as per 32 persons, who concern in demand side and supply side for tourism planning and management in Nakhon Si Thammarat Province. The researcher makes an appointment and interview for groups of Government Department, Private Section, and Local People, during May – June 2019. The part of tourists used to college in tourist attraction site in Nakhon Si Thammarat Province.

In this part, the research tool is Tourism Resource audit in-depth interview. The research was a qualitative research, and the data collected would be analyzed and presented in a descriptive report.

5. Research Findings:

The result of Tourism Resources Audit in Nakhon Si Thammarat Province based on in-depth interview form showed

Table 3: Tourism Resources Audit during May-June 2019

Type of Categories	Tourist Attraction
1. Natural Resources	- Khao Luang National Park - Khanom Beach - Pak Panang Seashore and Talumphuk Cape
2. Cultural Resources	- Phra Mahathat Wora Maha Viharn Temple - Seasoning Fruits and Local Foods - Chedi Temple or Ai Kai Temple
3. Event Resources	- Hae Pha Kuen Tart - Hae Nang Dhan Mini-light and Sound - Boon Sard Duen Sib
4.. Activity Resources	- Natural trails - Souvenir Shops - Cultural trails
5. Service Resources	- Accommodations - Reception - Public Transportation

The resulting finding, by the in-depth interview between May and June in 2019, the result showed the top three number of tourist attraction of each category, which was similar to what TAT (Tourism Authority of Thailand) recommend as the relative occurrence frequency of tourist attractions. It was sorted to identify the 15 top tourist attractions, namely, Khao Luang National Park, Khanom Beach, Pak Panang Seashore and Talumpuk Cape, Phar Mahathat Wora Maha Viharn Temple, Seasoning Fruits and Local Foods, Chedi Temple or Ai Kai Temple, Hae Pha Kuen Tart, Hae Nang Dhan Mini-light and sound, Boon Sard Duen Sib, Natural trails, Souvenir Shops, Cultural trails, Accommodations, Reception, and Public Transportation. This result is arranged to another part of the main project.

6. Discussions:

Nakhon Si Thammarat Province found 15 tourist attractions by 5 categories of Tourism Resources Audit. **The Natural Resources** are three tourist attractions as per Khao Luang National Park, its overlap 7 districts in province, with 597 square kilometers, it was announced as national park on December 18, 1974. The national park has a winding mountain range, with the Khao Luang peak the highest of the peaks in southern Thailand at 1,835 meters above sea-level. This park rain forest is home to a multitude of tropical flora and fauna. The interesting attractions are Khao Luang peak viewpoint, Karome Waterfall, Kaew Sarakan Cave, Krung Ching Waterfall, Yieb-Mek Cliff. Khanom Beaches is white sand beaches, clear sea, and all seashores throughout Khanom district. It is another famous beach in Nakhon Si Thammarat Province and replete with many interesting attractions, as per Khao Dadfha viewpoint, Nanpai Waterfall, Khaowang Cave, Mangrove forest, Mu Koh Tha Lea Tai National Park, and diving spots. Pak Panang Seashore and Talumphuk Cape was attracted by tropical Storm Harried, in 1962. However, it is now a remarkable attraction for its unique, crescent-shaped cape with the beach alongside. The **Cultural Resources** are three tourist attractions as per Phra Maha That Wora Maha Viharn Temple is called another name Phra Borommathat, is located on Ratcha Dam Noen Road, Muang District. This temple is a royal monastery and sacred place for Nakhon Si Thammarat people. Initially architecture of the monastery was in Sivijaya style, but the main pagoda is Lanka style. There are Phra Viharn Luang in Ayutthaya style. Seasoning Fruits and Local Foods are provided to distribute in local market and to export market. The local foods are spicy taste, fresh, and various kind of food. Chedi Temple or Ai Kai Temple is located in Si Chon district, was a deserted temple, which it is believed to be build more than 1,000 years old. The local people pay respect to for lucky in commerce. **The Event Resources** are three tourist attractions as per Hae Pha Kuen Tart is the oldest traditional, that believe enclosing holy fabrics to the Buddha's relics at Phra Maha That Wora Maha Viharn Temple, it happens two times a year in Magha Bucha Day (the third lunar month) and Visakha Bucha Day (the six-lunar month). Hae Nang Dhan Mini-light and sound is the show represented God Shiva who is testing the strength of the Earth. The trouper dresses up like a Brahmin and plays on giant swing. Boon Sard Duen Sib is called Ching Pred by the local. It is held in tenth mouth of the lunar calendar. This festival arranges for share virtues to ancestors and relatives who passed away. **The Activities Resources** are three tourist attractions as per Natural trails like a route around the Khao Luang National Park to see unspoiled natural scenery, the variety wildlife and rare animal and plant species, some of which can only be found in the National Park. Souvenir Shops in Nakhon Si Thammarat Province has many kinds of conserved handicrafts and local products as per Nielloware, silvers, shadow puppet, Yan Liphao basketry, and Authentic Local Woven Clothes. Cultural trails, the City Municipal arranged tour bus to show in the main road- Ratcha Dam Noen with local guide. **The Service Resources** are three tourist attractions as per Accommodation is more than 100 hotels around the city. Reception is comfortable point to visit around the city. The last is Public Transportation is many ways to visit this city as per airport, road, and railway. Based on result of study tourism development highly relies on gatekeepers' nature and economic background. (Wondirad, Ewnetu. 2019), which terms of sustainability is using tourist activity to planning and management decisions of destinations. (Oyola, Blancas, Gonzalez, & Caballero, 2019). The tourist attraction is depending on local tourism and cultural resources, to use tourism resources to develop tourism attraction under five pillars of SDGs. (Zhang, 2012). The sustainable tourism management refer to the use of tourism resources from the current generation to next generation in the future. (Najdeska, Rakicevik, 2012).

7. Conclusion:

This is a part of the main project in Sustainable Tourism development, which concern to economic, social, environmental, and cultural. The achievement goal destinations are depending on tourism resources that help establish concept of tourist attraction site. This may focus on five resources categories, and is based on the character of the resource in that particular setting. When the tourism resources base is very identical to other competing destinations, there is always an opportunity to identify aspects. The core function of the tourism resource audit is to create a database of tourism resources and provide an overall assessment of those features in terms of their development opportunity and constraints. Nakhon Si Thammarat Province, it can be provided basic tourism resources information from 32 persons as per simple group by in-depth interview- form, after that were collected the data analysis and descriptive information as per type of categories: 1) natural resources- Khoa Luang National Park; Khanom Beach; and Pak Panang Seashore and Talumphuk Cape. 2) cultural resources- Phra Mahathat Wora Maha Viharn Temple; Seasoning Fruits and Local Foods; and Chedi Temple or Ai Kai Temple. 3) event resources- Hae Pha Kuen Tart; Hae Nang Dhan Mini-light and Sound; and Boon Sard Duen Sib. 4) activity resources- Natural trails; Souvenir Shops; and Cultural trails. 5) service resources- Accommodations; Reception; and Public Transportation.

8. Suggestions:

The result of this study could be used as a guideline for a traveling plan and also as a guideline for the strategy planning for Sustainable Tourism Development in Nakhon Si Thammarat Province.

9. Acknowledgements:

This part of the main research project paper is completed with the kindness and assistance of many people. First of all, I would like to thank you all teacher of the Management College, Phayao University: Asst. Prof. Dr. Payom Dhamabutra, Dr. Sahanon Tungbenchasirikul, and Dr. Santidhorn Pooripakdee for all necessary advices and suggestion for this study.

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FACTORS AFFECTING DECISION ON PURCHASING WHOLESOME FOOD OF CONSUMERS IN AYUTTHAYA PROVINCE

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ABSTRACT

This research was designed to investigate 1) the marketing mix factors and the decision of purchasing wholesome food of consumers in the area of Ayutthaya province. 2) Draw a comparison on making decision on purchasing wholesome food of the consumers in Ayutthaya divided by individually factors, and 3) The marketing mix factors affecting decision on purchasing wholesome food of the consumers in Ayutthaya province. Sample of this research were 400 consumers who had consumed wholesome food in Ayutthaya province.

Research findings were as follow: the marketing mix factors were given a significance at a high level. The process of providing services, personnel aspect, and marketing promotion were granted importance respectively by the samples. In term of decision affecting consuming wholesome food of consumers in Ayutthaya, it is found at a medium level. The areas of post-purchasing evaluation, purchasing decision, and alternatives seeking were agreed respectively. As the hypothesis, it was found that the differences within marriage status, education, occupation, average monthly income affected the decision of purchasing wholesome food at the statistical significant level of 0.05. The marketing factors consisted of physical evidence, place, people, and promotion impact the consumers' decision on purchasing wholesome food in Ayutthaya at the statistical significant level of 0.05.

Keywords: Decision on purchasing, Wholesome food

1. Rationale

Wholesome food is stuff that is derived from nature which affect the body system including immune system enhancement, diseases prevention, diseases rehabilitation and slow down the aging period. Healthy food, vegetables, fruits, and grains are not only the source of various vitamins but also able to absorb waste substance from large intestine so that they can reduce the opportunity on facing between waste substance and large intestine wall. Consuming food with fiber can be a chance of various nutritional conditions. It is save to consume healthy food and also save the amount of time on recovering from the disease. Some of them are not able to be cured by medical process, so the natural treatment is one of the method of healing. Consuming wholesome food is considered as one of the natural treatments with less effect to human body (Wangjit Wangnai, 2009 quoted in Massarinya Mabangkru, 2015)

Nowadays, wholesome food in Thailand has been popular and desired by number of people, as the trend on healthy life has been increased. The consumer desire to own the pleased shape of body. They choose wholesome food to be one of the factors that can change their look. Hence, the entrepreneurs have been facing the competition on the creation of healthy products, along with the government policy which encourage the food industry to apply the technology and innovation on production (Thailand's Policy 4.0). This stimulate the producer to launch the healthy product into market in order to respond the consumers' needs and life styles. It was shown through the market value of food and beverage in 2018. Kasikorn Research Center had forecasted the value of consuming healthy food and beverage to be 86,648 million baht. The value of the groups of plant-based protein and plant-based milk which are the replacement food of meat, leguminous plant, mushrooms, and seaweed were approximately 6,321 million baht. It was forecasted that the value of consuming healthy food and beverage in 2019 would approximately be 88,731 million baht, the growth rate of 2.4% compared with 2018. The value of the groups of plant-based protein and plant-based milk would be around 6,725 million baht with the growth rate of 6.4% according to the trend of consuming high protein food instead of meat products in order to strengthen muscle, prevent disease caused from consuming meat products (Kasikorn Research Center, 2019)

As the increase of consumers' needs on consuming healthy food, the researcher has seen the importance of the healthy food industry. The interest in factors affecting decision on consuming wholesome food of consumers in Ayutthaya province in order that the result could be used as a guideline for developing the business.

2. Objectives

(1) To investigate the marketing mix factors and the decision of consuming wholesome food of consumers in Ayutthaya province.

(2) To draw comparison on decision of consuming wholesome food of consumers in Ayutthaya divided by individual factors.

(3) The marketing mix factors affecting decision on consuming wholesome food of the consumers in Ayutthaya province

3. Conceptual Framework

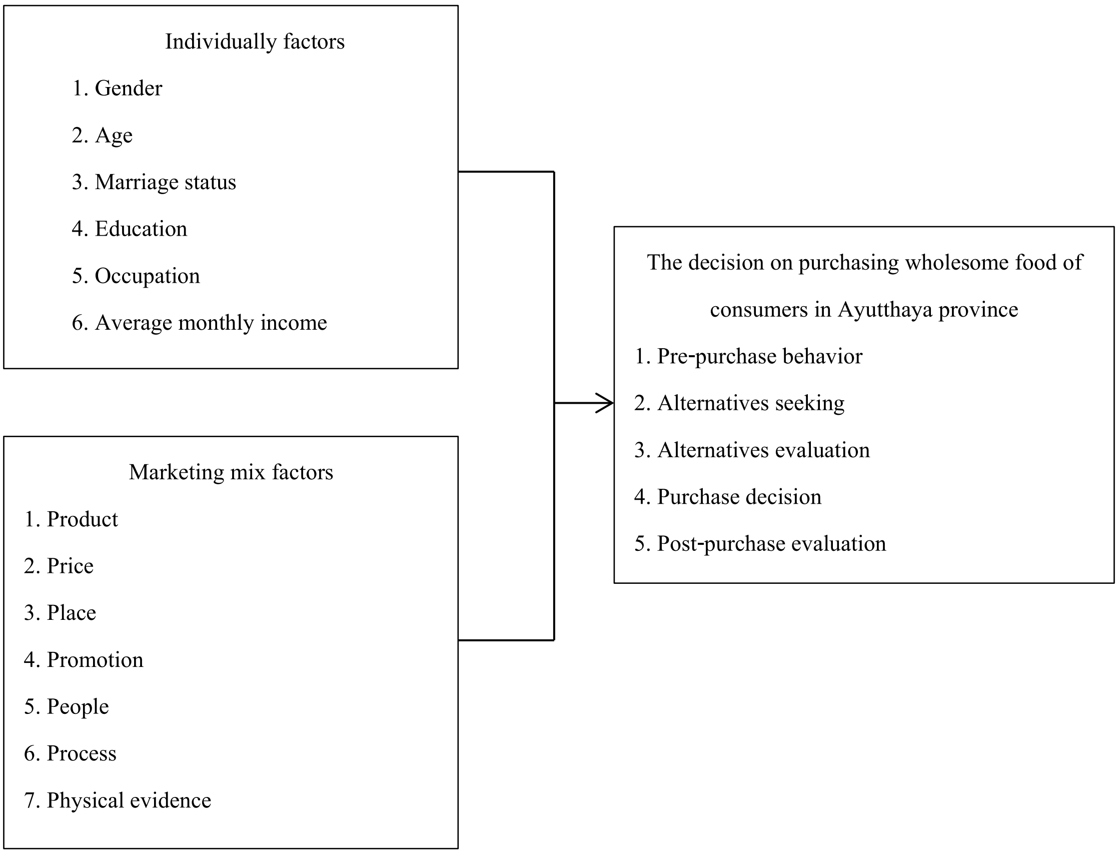

Figure 1 Conceptual Framework

4. Research Methodology

4.1 Research Design

The research of factors affecting decision of consuming wholesome food of consumers was a survey research, which aimed to survey the consumer who had purchased the wholesome food in the area of Ayutthaya. The questionnaire was applied as a tool of research.

4.2 Samples

The samples of the research were the wholesome food-consumers in Ayutthaya. The process of sampling size calculation was calculated by Cochran's formula in infinite population with the 95% reliability. The size of the samples was 400 consumers who had purchased wholesome food in Ayutthaya.

4.3 Variables

Kotler and Keller (2009) claimed that the service marketing mix, 7P's, is applied in service business in order to build customer satisfaction. The service marketing mix is consisted of product, price, place, promotion, people, process, and physical.

1. Product is the items offered in order to meet the customers' needs and satisfaction. The item and service were included as product as the customers not only need item, but also value and usefulness which will be provided by service business.

2. Price is financial value of product. Price has been defined as a cost of the customers. The value of product and price will be compared by the customers. If the product value is higher than price, the customers tend to purchase

3. Place is where the business take place. The place should cover the service location and target. The competitors' place should be considered as well.

4. Promotion is the way to communicate within the consumers and organization. It is divided into 4 areas with different target of communication and called marketing communications mix which comprise advertisement, promotion, public relation and salespersons.

5. People are ones who have an effect on service sale. It is separated into two groups; service person and customers. The service person is a group of people seeking service to meet customers' needs. This group play important role on contributing to the organization image and reputation. The customers are significant as they effect the service market. Their needs should be considered clearly in order that the business is able to seek items and service to suit their needs.

6. Process is the organization of marketing and operation. These ought to be operated unitely for customers' satisfaction. The service business should be considered as important issue on the process of service.

7. Physical Evidence is material which enhances the organization environment. It divided into two categories; appearances which build customers' satisfaction and essential properties which play important role on service purchasing decision.

The realm of buyer's decision process can be divided into five areas;

Armstrong and Kotler (2009) have claimed the stages a consumer takes in order to make decision on purchasing products.

1. Recognition is the first stage a consumer identifies a need or problem that the either product or service seeks to satisfy. The need can be from two sources, internal stimuli and external stimuli.

2. Information search is a second stage once the product or services are interested in. The information from various sources such as personal sources, commercial sources, or experimental sources will be gathered.

3. Alternatives evaluation is the stage that the customers evaluate the products' features such as brand, price, form, and service.

4. Purchase decision is the fourth stage after the customers have gone through the previous three stages. The most preferred brand, vendor, quantity, and timing are considered and made by the customers.

5. Post purchase behavior is the last stage the customers experience after purchasing. The satisfaction and dissatisfaction on either products or services depend on the customers' expectations.

The following variables were set after the literature review;

Independent variables consisted of individual factors including genders, age, marriage status, education, occupations, average monthly income and marketing mix factors, which are product, price, place, promotion, people, process, and physical evidence.

Dependent variable were decision on consuming wholesome food including Pre-purchase behavior, alternatives seeking, alternatives evaluation, purchase decision, and Post-purchase evaluation.

4.4 Research Instruments

The conducted and developed questionnaire was applied for the research in order to investigate the consumers' information on consuming wholesome food. IOC academic dignitaries checked the content validity of the tool. The Index of Item-Objective Congruence of marketing mix factors toward decision on consuming wholesome food was 1.00 and of the decision on consuming wholesome food was 1.00.

The questionnaire was validity checked by applying the developed questionnaire with 30 consumers who were not the samples in Ayutthaya. It was then analyzed by Cronbach's Alpha Coefficient using the package software. The reliabilities of instrument on marketing factors affecting decision on consuming wholesome food, on decision on consuming wholesome food were 0.893 and 0.904 respectively. It was concluded that the reliability was able to be accepted as the outcome was 0.7 which more than the standard.

4.5 Data Collecting

1. 400 sets of questionnaire were sent out to the samples
2. The questionnaires were collected
3. The completion of the responded questionnaire was checked
4. The data of questionnaire was arranged in categories in order to statistically analyze

4.6 Data Analysis

The data was analyzed on the package software. The general information of the samples was analyzed by descriptive statistics, percentage, average, standard deviation. The influence of independent variables affecting a dependent variable was tested by t-test. One-Way ANOVA was used to compare the differences of groups' average and the Multiple Regression.

5. Conclusion

In the realm of personal information factors, most of the samples were women, 54%. Samples were at the age between 25-35 was 65.8%. Samples with the marriage status of being single was 65.8%. The samples with bachelor degree was 55.8%. The samples' occupation was 76.55% employees, and the average monthly income showed between 15,001-30,000 baht, 29.0%.

The findings on marketing mix factors were found that the respondents provided the importance at a high level. The most concerned factors were process, people, and promotion at the mean of 3.79, 3.78, and 3.23 respectively.

The decision on consuming wholesome food of consumers in Ayutthaya was found at the medium level. The samples agreed with the post-purchase evaluation, the decision on purchasing, and the alternative evaluation with the means of 3.37, 3.36, and 3.29 respectively.

The comparison of decision on consuming wholesome food of the consumers in Ayutthaya divided by individual factors was showed that the different individual factors influence on the different wholesome food at the statistical significance of 0.05

Table 1 Multiple linear regression analysis between dependent and independent variables

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	1.349	.144		9.342	0.000
Physical Evidence	.295	.063	.338	4.673	.000
Place	.282	.057	.304	4.940	.000
People	.145	.049	.194	2.993	.003
Promotion	.139	.047	.188	2.961	.003

R^2 = 0.369, F = 57.715, p< 0.05

From the shown table, marketing mix factors, physical evidence, place, people, and promotion statistical significant affected the consumers' decision on consuming wholesome food in Ayutthaya at 0.05.

The physical evidence, place, and promotion affect the consumes' decision on consuming wholesome food at .338, .304, and 188 respectively.

The Coefficient of Determination (R^2 = 0.369) found that marketing mix factors in the areas of physical evidence, place, people, and promotion calculated as 36.9% with the statistical significance at 0.05.

The formula of marketing mix factors affecting decision on consuming wholesome food of consumers in Ayutthaya province can be written as

Y = 1.349 + 0.295 (Physical Evidence) + 0.282 (Place) + 0.145 (People) + 0.139 (Promotion)

The predictive power was at 36.9 percent

6. Discussion

The finding showed that the individual factors; marriage status, education, occupation and average monthly income affected the statistical different on decision wholesome food at 0.05 according to Belch and Micheal's theory (2005) which says the different individually factors affect the need of consuming products. The people with higher education tend to need the high quality products and service than those who have to lower one. The different occupations lead to consume products by the different needs and necessary. The average monthly income influence on the decision of consuming products which related with Prangwalai Chotirattanasak's research (2017) who investigated the consumers' behaviors on consuming at healthy food restaurants in the area of Asoke, Bangkok. The findings was the difference of consumers; genders, age, occupation, and monthly income affect the decision on choosing the healthy food restaurant.

From the findings, the marketing mix factors on physical evidence, place, people, and promotion influence on decision on consuming wholesome food with the statistical significant at 0.05, according to Chutima Chutikamo's research in 2010 which was found that the marketing mix factors influence on decision on purchasing functional drink and Mahiaisawan Mahatanapiwat's research (2011) who found that the marketing mix factors played an important role on any steps of decision on purchasing which were included problem recognition, research for information, alternative evaluation, decision on consuming, and post-purchase behavior. Mahatanapiwat's finding also showed that the promotion was the most significant factors on consumers' decision on each step of purchasing.

7. Recommendations

7.1 Recommendation on applying research results

(1) The finding showed that the differences of personal factors; marriage status, education, occupation, and average monthly income affected the consumers ' decision on purchasing wholesome food. The entrepreneur ought to adapt the strategies to conform to the target and stimuli the purchasing decision

(2) The entrepreneurs should focus on bringing the marketing mix factors; physical evidence, place, and person to adapt on marketing strategies to meet the consumers' need as the finding showed these three factors are most considered by the customers.

7.2 Recommendation for further studies

(1) The behavior of consuming wholesome food such as vegetarian food, organic food should be focused on

(2) Other factors affecting decision on consuming wholesome food should be considered to cover the significant information in order to be taken to improve wholesome food to be more efficient

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LEADERSHIP OF BUDDHIST ECCLESIASTICAL OFFICIAL FOR THE GOVERNMENT OF DHAMMAYUT NIKAYA

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ABSTRACT

The purpose of this article is to study the leadership concept of the Sangha Administrative and the administration of Dhammayut ecclesiastic in Surin Province. The research is qualitative research conducted collection data from is a semi-structured interview form with 8 Key informants. The finding of this article shows that in the 21st century, Thailand changed the social situation all the time. Thai people pay attention to modern technology. They rely on information from social media, neglect being perfect Buddhists, leave out cultural roots, traditions. In addition, disregard the Buddha doctrine. Nowadays, some of the clergies commit immorality and frequently appearing in Thailand news. Consequently, this phenomenon is known as the faith crisis. Therefore, the leadership of Buddhist Ecclesiastical Official Monk, Government, Dhammayut Nikaya sect in a crisis of faith should consist of a vision, good communication skills, self -confidence, empowerment, reference power and motivation. That being a chaste role model. Adhere Buddha principle for felicity rule calm and peaceful among the ecclesiastic is necessary for the Sangha administrative.

Keywords: Leadership, Buddhist Ecclesiastical Official Monk, Government, Dhammayut Nikaya sect

1. Introduction

Dhammayut Nikaya is under the Thai ecclesiastic and important in Thai history. Ordinarily, they have the tradition, faith in practice and respect older monks. Mostly, Buddhists give special respect because of The strictly rules. Especially the monks who focus on Dhamma practice, go on a hike and travel to stay in the forest to practice.

Currently, the number of Dhammayut monks' values is increasing more than in the past. Therefore, they have a rule pattern to take care of order and supervise the monks to be in classy morals and behave according to the discipline. Accordingly, they have determined that the position "Sangha Administrator" occurs in accordance with article 4 of the Sangha Synod Association, issue 24 (1998). The meaning of Sangha Administrator is the ecclesiastic guardian which has 7 qualifications as follows: 1) The age of ordination is suitable for the position. 2) There is the right knowledge for the position. 3) Good behavior according to the discipline. 4) intelligence in the abbot administration. 5) The perfect of physically and Insane, there isn't leprosy or tuberculosis. 6) Never sentenced to judgment. 7) Never made a mistake and dislodge. Nowadays, for Buddhism Institute of Religion in Thailand, the government has the policy to reform Buddhism 6 + 1 in the area of administration, propagation, religion education, welfare, public welfare, plus one side is the development of The Phutthamonthon as the center of world Buddhism. An important factor in promoting the government of the priest to be stable prosperity in parallel with the Buddhist activities, which are "Sangha Administrative Officers". Considered to have spiritual leadership, that is close and dependent on respect for the faith of Buddhists in the community Buddhist monk. Consequently, the leadership must be full of many components such as morality and ethics. Leadership faithfulness and must consist of science, art and strategy for managing temples' treasures. Moreover, skills in planning Management, human resource management, director coordination, evaluation, follow-up, and budget. Therefore, the monk administrative is an important mechanism. As a leader of the hermit, which has many roles at the same time.

Thai society has changed. There is news about monks from various events. According to the research of Phra Priyaphong Khun Panya (2010), found that from 2003-2007. The monks have illegal 117 cases. There are the murder 37 cases, The sexual harassment 35 cases. The theft 30 cases, and the drug 15 cases. Consider only cases of sexual abuse. Every case is a sensitive issue. Sexual Abuse Cases Especially the offender is monks and the victim are a minor. In addition, found that most of them. They prosecuted were between 41-60 years old, most of them ordained from 5 years up is 37.1 percent. Moreover, the culprit was abbot and govern preacher. While the sex of the abuser is mostly female, 34 cases, only 3 cases where the sex abuser is male. In which the majority are confidants of the monks who made the case. Nevertheless, the main reason for the violation of discipline. The results of the research indicate that this crisis of faith occurred, the ordained ones do not have knowledge and understanding of the principles. Ordination is according to tradition. As a result, during the Buddhist lent, true lack of intention to study the principles leading to the wrongdoing both secular and religious in many cases from this problem. Therefore, presenting the leadership characteristics of the Sangha Administrative Officers and the administration of the Dhammayut cleric in the midst of a rapidly changing social situation including the use of online social media in communication to lead to a crisis of faith in Buddhism. Therefore, this article is very useful to lead to the development of leadership styles that have the desired characteristics of the Sangha Administrative Division and Dhammayut reign.

2. Objective

The objective of this article is to study in the leadership concept of the Sangha Administrative Monks and the administration of Dhammayut ecclesiastic in Surin Province.

3. Literature review

3.1 The leadership of Dhammayut Buddhist ecclesiastical

The meaning of the Sangha Administrator. According to the Sangha Synod Association No. 5 (1963) on the appointment and removal of the Sangha. Assign the first name by changing the word "Buddhist monk" to be "Sangha Administrative Monk" as the nature of the Sangha affairs, combining the words "Phra", "Sangha" and "Rector" into "Administrative Sangha" translated according to the terminology that "Buddhist monks who work without rights in the Sangha" "Buddhist monks who have full authority according to their positions" which he prescribes means "Monks who hold the master position of the Sangha" (Maha Sangha Association No. 5 (1963).

3.2 Concepts of Sangha Administrative Monk

The Sangha Administrative Monk means the monk who holds the government preacher, including 1) the Great Primate 2) the Vice Primate, Primate Region 3) the provincial primate Deputy Dean of Provinces 4) District Dean, Deputy Dean of District 5) District Dean, District Deputy Dean 6) Abbot, Deputy Abbot, Assistant Abbot. (Department of Religion, 1998: 2)

However, to the Sangha Act, The Sangha Administrator has the duty to oversee the administration to resolve disputes, conciliate and resolve problems together, so that he can continue the monk's business sustainably. (Department of Religious Affairs, 1997: 2), who is driving the administration of the priest and Buddhism to practice correctly, beneficial for both religious education Propagation of Buddhism Public facilities Education And public welfare. (Office of the Dean Region 16, 2004: 46)

3.3 The government concept of the Dhammayut ecclesiastic

The Dhammayut ecclesiastic set up during the reign of Rama IV with the ideology to reform Buddha. In addition, the reconstruction of Buddhist practices which are reminder them to adhere to the doctrine. However, the sect is logical and scientific and there is profound truth that leads to liberation. Consequently, the essence of the doctrine in Buddhism does not conflict with modern scientific progress and is something that the Lord Buddha knew 2000 years ago.

3.3.1 The governing concept

There are 3 main principles of governing monk as follows. (Wira Apansuk, 1983, p. 1-10)

1) Holding the Dhamma discipline as management and use moral of the noble disciple to support.

2) Respect individual customs and discipline.

3) There is unity and peace of the clergy under the Buddhist law.

3.3.2 Goals for Governing

Goals for governing to maintain the beauty of the monastic institutions and to promote good behavior and subdue evils.

4. Research Methodology

The research methodology is qualitative research for study in Leadership of Buddhist Ecclesiastical Official for the Government of Dhammayut Nikaya.

4.1 Population and Sample groups

The population is Buddhist Ecclesiastical Official for the Government of Dhammayut Nikaya 11 sect at The North Eastern of Thailand 4 province consists of Nakornratchasima Province, Buriram Province, Chaiyaphum Province and Surin province. The sample groups are Surin province and were collected by purposive sampling.

4.2 Instruments

The research instrument is the semi-instruction interview form.

4.3 Data collection and Data analysis

The data were collected by an in-depth interview with 8 Key informants by a semi-instruction interview form. Subsequently, the data were analyzed by descriptive interpretation.

5. Data Conclusion

The leadership of the Sangha Administrator

Leadership and governance of the Dhammayut Nikaya sect preacher in the view of the Sangha Administrator with the following details.

5.1 Vision

The concept of Sangha Administrative Officer about the leadership of vision gave a definition is an expression ability to persuade other people and contributions in a change in clergy affairs. There is the ability to communicate and self-confidence, besides, they have work power and able to promote power and influence, moreover, causing followers to have faith, acceptance, and respect according to Buddha's teaching. (Prakroo Mongkon Papatson Seelakun, Prakroo Sunthorn Panyarangsi, Paytaai Sutsongsin, Prakroo Bpraamothtamwong, Prarat Wisuttimunee. (2019). Interview, 21st October 2019)

5.2 Communication skills

The communication skills from interviews with Sangha Administrative Officers regarding the communication skills concept is the expression of the Sangha Administrative Officer. (Paytaai Sutsongsin, Interview, 21st October 2019) Which demonstrates the ability to send information and receive information from the doctrine according to the Tripitaka to monks, novices and Buddhist order to understand the correct principles and can convince the mind to believe that will lead to the creation of faith and charisma. (PrakrooSunthorn Panyarangsi, Prakroo Sathit Bpanyakun Siripanyo, Prakroo Mongkon Papatson Seelakun, Interview, 20th October 2019)

5.3 Self-confidence

The self-confidence leadership is an expression about leadership, the courage to think, the courage to decide, act on their own independent, rational, confident, stable and unshaken believing reasonably, trying to accept other people's opinions. Accepting mistakes made with anyone, respect yourself and others. The first thing to do before convincing or creating faith is communicating with colleagues and subordinates to understand the principles. Including thinking about the goals and needs of the leaders themselves. Therefore, when the Sangha administrative has confidence in himself then they will be able to demonstrate ideologies, ideas, and policies to be able to attract followers to accept and support later. (Prakroo Sunthorn Panyarangsi, Paytaai Sutsongsin, Prakroo Bpraamothtamwong, Prakroo Mongkon Papatson Seelakun, Prarat Wisuttimunee. Interview, 20th October 2019)

5.4 Empowerment

The empowerment leadership is the expression of the Sangha Administrative Officer. In management that helps personnel develop their ability to operate efficiently and effectively demonstrate positive organizational outcomes and organizational processes Behavior, performance, work, and showing the development of competency that develops causing benefits to organizations and personnel. (Prakroo Sunthorn Panyarangsi, Prakroo Sunthorn Punyapinan, Prarat Wisuttimunee, Interview, 20th October 2019) (Paytaai Sutsongsin, Prakroo Sathit Bpanyakun Siripanyo, Interview, 21st October 2019)

5.5 Reference power

The reference power leadership is an expression of the Sangha administrative authority. Caused by special characteristics of an individual or executive is a personal prestige that causes subordinates to take behavioral models. There is trust being loved and respected by other people due to their personality, liking Respect, which influences the subordinates. (Prakroo Sunthorn Panyarangsi, Paytaai Sutsongsin, Prakroo Mongkon Papatson Seelakun, Phattharapol Chamniya, Phattharapol Chamniya, Interview, 21st October 2019)

5.6 Motivation

The concept of Sangha Administrative Officer about leadership of Motivation is the expression of the Sangha Administrator who encourages colleagues or subordinates to devote themselves to work and has a responsibility to accomplish the task well. Motivation is a good example. Proper posture or encouragement with compliments. Sincere motivation will give the power and determination to overcome problems and obstacles. In the end, it will allow the worker to accomplish the goals that the leader expects. (Prakroo Sunthorn Paunyarangsi, Prakroo Sunthorn Punyapinan, Prakroo Mongkon Papatson Seelakun, Prakroo Mongkon Papatson Seelakun, Prakroo Bpraamothtamwong, Prarat Wisuttimunee, Interview, 20th October 2019)

Figure 1 Leadership concept of Buddhist Ecclesiastical Official for the Governmentof Dhammayut Nikaya

6. Value from education

This article shows the perspectives of Sangha Administrator in the administration of the Dhammayut votary, who are committed to conducting according to the teachings of the Buddha but the faith crisis that has occurred in social societies. This news made people have declining faith in Buddhism. Therefore, The Sangha administrative should develop the leadership model by the doctrine of the Buddha to become a good monk and good Buddhist and preserving Buddhism, which is the national religion of the Thai people.

7. Benefit from education

8.1 In order to get to know the concepts, desirable characteristics of the Sangha Administrator in the administration of the Sangha, the Dhammayut ecclesiastic.

8.2 In order to get the guidelines for the development of the leadership style of the Sangha Administrative Monks and the administration of the Dhammayut ecclesiastic.

8.3 To be a guideline for developing training courses for monks in the administration of desirable Dharma ecclesiastic.

8. Summary and Discussion

The 21st century, Thailand has changed socially all the time. Including resulting in Thai people paying attention to modern technology and rely heavily on information from social media trends. Causing Thai people to forget about being a good Buddhist. Became abandoned, cultural roots, good traditions and forgot the doctrine of the Buddha. Many infringements committed by some monks. Causing a crisis of faith and a lot of disruption to Buddhism. Leadership of Buddhist Ecclesiastical Official for the Government of Dhammayut Nikaya in this study should consist of 1) Vision is an expression ability to persuade other people and contributions in a change in clergy affairs consistent with Thongchai Singudom (2013); Summa Rathanit (2011);Banchayut Nakmujalin

(2011) that the leader must have wisdom to look far away. Aiming to be a leader of change to support global change.

Communication skills is the expression of the Sangha Administrative Office which demonstrates the ability to send information and receive information from the doctrine according to the Tripitaka to monks, novices and Buddhist order to understand the correct principles and can convince the mind to believe that will lead to the creation of faith and charisma. Consistent with Arjen B., Sanneke K. and Werner O. (2556); Thongchai Singudom (2013); Chayapol Petpimol. (2013)

Self-confidence is an expression about leadership, the courage to think, the courage to decide, act on their own independent, rational, confident, stable and unshaken believing reasonably, trying to accept other people's opinions. In accordance with Arjen B., Sanneke K. and Werner O. (2556)

Empowerment is the expression of the Sangha Administrative Officer. In management that helps personnel develop their ability to operate efficiently and effectively demonstrate positive organizational outcomes and organizational processes Behavior, performance, work, and showing the development of competency that develops causing benefits to organizations and personnel. Agree with McKay, Forbes & Bourner (1990); Kinlaw (1995); Honold (1997) ; Anothai Weerapongsuchat (1998); Nakarin Kaewchotrong (2013)

Reference power is an expression of the Sangha administrative authority. Caused by special characteristics of an individual or executive is a personal prestige that causes subordinates to take behavioral models. There is trust being loved and respected by other people due to their personality, liking Respect, which influences the subordinates with accordance with Somyot Naweekan. (1997) and conflict with Kinlaw (1995) that the executive is a facilitator or an advisor to the practitioners to achieve work success which leads to the creation of prestige. Therefore, leaders must be fair and allowing everyone the opportunity to participate, not just the commander.

Motivation the expression of the Sangha Administrator who encourages colleagues or subordinates to devote themselves to work and has a responsibility to accomplish the task well. Motivation is a good example. Proper posture or encouragement with compliments. Sincere motivation will give the power and determination to overcome problems and obstacles. In the end, it will allow the worker to accomplish the goals that the leader expects. Agreeable with Herzberg, F. (1959); Mayer, J. D. & Salovey, P. (1997); House, R.J. and Aditya, R. (1997).

Summarize, the Sangha Administrative is very necessary to show leadership in governance along with the compliance with the Tipitaka and being a good role model. Adhere Buddhist principle of the buddha for a happy rule calm and peaceful among the priest.

10. Suggestion

The study of the leadership of Buddhist Ecclesiastical Official Monk for the Government of Dhammayut Nikaya. There are still issues that should be studied and learned such as Leadership Styles of Sangha Administrator during the Faith Crisis or Principles of conflict management during the crisis of faith in the administration of the Dhammayut priest etc. This study can be further developed in the model of the Sangha Administrator in the future, both the Dhammayut and Mahanikaya.

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AN EMPIRICAL STUDY OF DEMOGRAPHIC CHARACTERISTICS TOWARD HUA HIN DESTINATION BRAND EQUITY, THAILAND

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ABSTRACT

This research aimed to examine how the variation of demographic characteristics of Thai tourists influence destination brand equity toward Hua Hin destinations. The sampling group was Thai tourists who have visited Hua Hin destinations. Four hundred Thai tourists were participated in this survey research using the convenience sampling method. The mean, standard deviation, and percentage were being formulated as the descriptive statistics and T-test and One-Way ANOVA were analyzed in testing this hypothesis. When analyzing the variance, if the differences were found between the mean, then tested the differences between the paired averages with Scheffe's method with a significant level of 0.05. The results of analyzing the demographic characteristics influencing brand equity factors on tourism destinations have shown that the educational level, resident region and average income per month have an impact on destination brand equity. Therefore, the analysis result confirms that demographic characteristics of tourists can be the marketing data for creating the marketing strategy and brand strategy to enhance image and reputation for the accurate segmentation, target, and position.

Keywords: destination brand equity, demographic characteristics

1. Introduction

Hua Hin is one of the famous destinations for Thai and international tourists with a long history as a luxury beach destination for the past hundred years. Hua Hin Municipality's vision is as following: Hua Hin is an international tourism city, educational, sustainable environment, sufficiency community with a quality of life. The administration involvement will lead Hua Hin to be a fascinating city. This has led to conformity with the situation and potential analysis for being by the outstanding structure of tourism and the diverse tourist destination at the domestic and international levels. Therefore, Hua Hin destination has the prospective of destination with a variety of values, both natural, ecotourism and historical destination (Hua Hin Municipality , 2017). It is relevant to World Tourism Organization described that tourism takes full account of its current and future economic, social and environmental impacts, addressing the involvement of visitors, the industry, the environment, and host communities (World Tourism Organization, 2005).

Based on the changing phenomena and tourist behavior, the destination needs to recognize the importance of attracting the right target with the right capacity. Butler (2006) described the evolution of attraction development path that starting with the growth stage, stagnation stage and regression of popularity. "Tourist attractions are not infinite and timeless but should be viewed and treated as finite and possibly non - renewable". Furthermore, the concept of tourism carrying capacity by United Nations Environment Programme described that the maximum number of people that may visit the tourist destination without causing destruction of the physical, economic, and socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction (United Nations Environment Programme, 1997).

The study of demographic characteristics is significant due to the differences in the population in each area. There will be a different selection of products and services. Serirat (2007) defines those demographic characteristics as the data for the market segmentation, making more effective in defining target markets and easier to measure than other variables. It consists of five characteristics; gender, age, education, occupation and income. (1) Gender has a tendency for differences in attitudes and behaviors. (2) Age groups are in differences of a liking of different tastes and changing with age. (3) Education will result in the consumption of better quality products. (4) People with different occupations result in different needs of goods and services. (5) Consumers with medium-income and low-income have a larger market size than high-income consumers. Therefore, there is a market segmentation based on income for various products and services (Serirat, 2007). The past studies demonstrated that branding, brand image management, and brand engagement have not been seriously studied in Thailand. The government and private sectors have emphasized on overall tourism studying and image promotion (Prommahaa, 2015).

However, there is a lack of research on specific brand equity in tourism literature in Thailand. In this present competitive market among national and worldwide cities and the competitive phenomena of the brand destination, the researcher recognized the significance of demographic characteristics toward the destination brand equity of Hua Hin tourism.

2. Research Objective

The purpose of this research is to examine how the variation of demographic characteristics of Thai tourists influence destination brand equity toward Hua Hin destination.

3. Research Framework

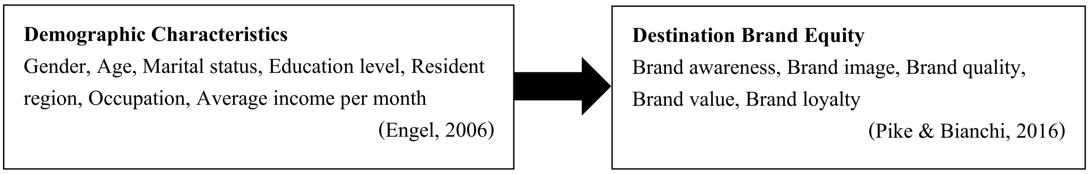

Figure 1: Research Framework

4. Research Methodology

4.1 Research Design

This research employed the quantitative research approach to collect the data to examine the demographic characteristics of Thai tourists on destination brand equity of Hua Hin destination.

4.2 Population and Sampling

The four hundred Thai tourists were considered as representative of the population by using convenience sampling (Cochran, 1977). The research data were collected by using the on-line and the face-to-face survey method of the Thai tourists who visited Hua Hin. Four hundred questionnaires were coded for analysis.

4.3 Variable

The independent variable was the demographic characteristics of Thai tourists who visited Hua Hin in the past period, and the dependent variable was perceived on destination brand equity toward Hua Hin tourism which are brand awareness, brand image, brand quality, brand value, and brand loyalty.

4.4 Research Instrument

This quantitative method study used the questionnaire as research instrument. There were four parts in this survey. Part I was the nominal and ordinal questions, collecting gender, age, marital status, educational level, resident region, occupation and personal income per month. Part II was the multiple responses question, collecting the top of mind awareness towards Hua Hin attractions. Part III was twenty Likert-scale questions, probing about respondents' brand equity, having five key constructs, brand awareness, brand image, brand quality, brand value, and brand loyalty. Finally, Part IV was the opened questions, collecting comment.

4.5 Data Collection

The data collection was conducted from April to September 2019, by using convenience sampling both the on-line and the face-to-face survey method in Hua Hin District area.

4.6 Data Analysis

T-test and One-Way ANOVA were analyzed in testing this hypothesis. When analyzing the variance, if the differences were found between the means, then would test the differences between the paired averages with Scheffe's method.

5. Research Findings

5.1 Summary of Descriptive Findings

The majority of the sampling is female (61.00%, n = 244), aged 21-30 years old (45.25%, n = 181), marital status as single (63.00%, n = 252), completed bachelor's degree (59.25%, n = 237), from the central region of Thailand as resident region (28.25%, n = 113), the occupation as employees (41.50%, n = 166), and personal income per month from 10,001-20,000 Baht (31.50%, n = 126).

Table 1 shows the descriptive statistics of the various dimension of destination brand equity toward Hua Hin tourism. The level of destination brand equity was examined – very high, high, medium, low and very low level. Data analysis revealed that destination brand awareness shows the overall mean of 3.92 (S.D. = 0.915). It shows that "this destination is quite attractive and known as the destination" is the highest mean in this dimension (Mean = 4.13, S.D. = 0.855), followed by "this destination is very famous both domestic and international level" (Mean = 4.12, S.D. = 0.819) and "this destination is very quickly coming to mind as the first choice" (Mean = 4.03, S.D. = 0.904), respectively. Please refer to Table 2 for demographic analysis of tourists.

In the second dimension, respondents responded about the destination brand image with an overall mean of 3.73 (S.D. = 0.934). The highest mean in this dimension is "this destination visiting is demonstrating of tourist's character" (Mean = 3.83, S.D. = 0.913), followed by "this destination image is relevant to tourist's personality" (Mean = 3.76, S.D. = 0.970), and "this destination image is relevant to tourist's personal image" (Mean = 3.71, S.D. = 0.907), respectively.

The third dimension shows the destination brand quality with an overall mean of 3.92 (S.D. = 0.844). The highest mean in this dimension is "this destination has high quality of accommodation amenities" (Mean = 4.33, S.D. = 0.733), followed by "this destination has high level of safe and secure "(Mean = 3.81, S.D. = 0.875), and "this destination has high quality of infrastructure" (Mean = 3.77, S.D. = 0.895), respectively.

The fourth dimension shows the destination brand value with the overall mean of 3.63 (S.D. = 0.922). The highest mean in this dimension is "this destination has the convenience of tourism costs" (Mean = 3.66, S.D. = 0.981), followed by "this destination has the reasonable costs for spending pleasant times" (Mean = 3.65, S.D. = 0.892), and "this destination has offered something more than costs reasonability" (Mean = 3.63, S.D. = 0.897), respectively. The fifth dimension shows the destination brand loyalty with an overall mean of 3.97 (S.D. = 0.952). The highest mean in this dimension is "this destination has high level of loyalty for revisit" (Mean = 4.11, S.D. = 0.931), followed by "this destination has high level of recommending to others" (Mean = 4.05, S.D. = 0.918), and "this destination has high level of intention for vacation revisit" (Mean = 3.84, S.D. = 0.998), respectively

Table 1: Descriptive Statistics of Destination Brand Equity of Hua Hin

Variable Used	Items Used in the Questionnaire	Mean	S.D.
Destination Brand Awareness	This destination is very famous both domestic and international level	4.12	0.819
	This destination is very quickly coming to mind as the first choice	4.03	0.904
	This destination is quite attractive and known as the destination	4.13	0.855
	This destination is quite a lot of promoting advertisement	3.39	1.080
Destination Brand Image	This destination image is relevant to the tourist's personality	3.76	0.970
	This destination visiting is demonstrating of tourist’s character	3.83	0.913
	This destination image is relevant to the tourist's personal image	3.71	0.907
	This destination image is reflecting the tourist's personal image	3.61	0.946
Destination Brand Quality	This destination has a high quality of accommodation amenities	4.33	0.733
	This destination has a high level of cleanliness	3.76	0.871
	This destination has a high level of safe and secure	3.81	0.875
	This destination has a high quality of infrastructure	3.77	0.895
Destination Brand Value	This destination has the convenience of tourism costs	3.66	0.981
	This destination has offered something more than costs reasonability	3.63	0.897
	This destination has the advantage of tourism costs for the tourists	3.56	0.919
	This destination has reasonable costs for spending pleasant times	3.65	0.892
Destination Brand Loyalty	This destination has a high level of intention for vacation revisit	3.84	0.998
	This destination has a high level of recommending to others	4.05	0.918
	This destination has a high level of loyalty for a revisit	4.11	0.931
	This destination has a high level of advantage comparing to other	3.71	0.959
Valid N (listwise)	400		

Source: Created by the author using SPSS software

5.2 Summary of Inferential Findings

Hypothesis 1: Tourists’ gender significantly influence destination brand equity

Table 2: T-test tests between the effect of gender and destination brand equity

Destination Brand Equity	$\bar{X}$ Male	$\bar{X}$ Female	S.D. Male	S.D. Female	t	df	Sig.
Brand Awareness	3.86	3.95	0.754	0.686	3.568	398	0.060
Brand Image	3.70	3.74	0.822	0.816	0.156	398	0.694
Brand Quality	3.96	3.89	0.688	0.662	1.109	398	0.293
Brand Value	3.62	3.63	0.833	0.811	0.527	398	0.468
Brand Loyalty	3.87	3.96	0.847	0.802	0.335	398	0.563
Overall	3.8019	3.8359	0.658	0.616	0.659	398	0.417

Note: * $p< 0.05$

T-test analysis in Table 2, shows that tourists’ gender had no significant difference on destination brand equity (F = 0.659, Sig. = 0.417) in overall and in all five dimensions: brand awareness (F = 3.568, Sig. = 0.060), brand image (F = 0.156, Sig. = 0.694), brand quality (F = 1.109, Sig. = 0.293), brand value (F = 0.527, Sig. = 0.468) and brand loyalty (F = 0.335, Sig. = 0.563). Therefore, gender did not influence destination brand equity.

Hypothesis 2: Tourists' age significantly influence destination brand equity

One-Way ANOVA analysis in Table 3, shows that tourists' age had no significant difference on destination brand equity (F = 1.188, Sig. = 0.314) in overall and in all five dimensions: brand awareness (F = 1.609, Sig. = 0.157), brand image (F = 0.859, Sig. = 0.508), brand quality (F = 1.852, Sig. = 0.102), brand value (F = 0.927, Sig. = 0.463) and brand loyalty (F = 1.771, Sig. = 0.118). Therefore, tourists' age did not influence destination brand equity.

Table 3: One-Way ANOVA analysis the influence of age on perceived destination brand equity

Destination Brand Equity	SS	df	MS	F	Sig.
Brand Awareness	4.070	5	0.814	1.609	0.157
Brand Image	2.878	5	0.576	0.859	0.508
Brand Quality	4.137	5	0.827	1.852	0.102
Brand Value	3.112	5	0.622	0.927	0.463
Brand Loyalty	5.904	5	1.181	1.771	0.118
Overall	2.368	5	0.474	1.188	0.314

Note: * p< 0.05

Hypothesis 3: Tourists' marital status significantly influence destination brand equity

One-Way ANOVA analysis in Table 4, shows that tourists' marital status had no significant difference on destination brand equity (F = 0.784, Sig. = 0.457) in overall and the dimensions of brand awareness (F = 0.936, Sig. = 0.393), brand image (F = 0.612, Sig. = 0.543), brand value (F = 1.424, Sig. = 0.242) and brand loyalty (F = 0.915, Sig. = 0.401). However, only one dimension had significant difference which is brand quality (F = 4.930, Sig. = 0.008*). Thus, hypothesis 3 was not supported.

Table 4: One-Way ANOVA analysis the influence of marital status on perceived destination brand equity

Destination Brand Equity	SS	df	MS	F	Sig.
Brand Awareness	0.955	2	0.477	0.936	0.393
Brand Image	0.820	2	0.410	0.612	0.543
Brand Quality	4.366	2	2.183	4.930	0.008*
Brand Value	1.907	2	0.953	1.424	0.242
Brand Loyalty	1.232	2	0.616	0.915	0.401
Overall	0.628	2	0.314	0.784	0.457

Note: * p< 0.05

Hypothesis 4: Tourists' educational level significantly influence destination brand equity

One-Way ANOVA analysis in Table 5, shows that tourists' educational level had significant difference on destination brand equity (F = 8.174, Sig. = 0.000*) in overall and the five dimensions: brand awareness (F = 6.475, Sig. = 0.002*), brand image (F = 5.210, Sig. = 0.006*), brand quality (F = 4.455, Sig. = 0.012*), brand value (F = 5.899, Sig. = 0.003*) and brand loyalty (F = 5.856, Sig. = 0.003*). Thus, hypothesis 4 was supported.

The further finding by testing the differences between the paired averages with the Scheffe's method, found that the dimension of brand awareness (Sig. = 0.004*), brand image (Sig. = 0.006*), brand quality (Sig. = 0.029*), brand value (Sig. = 0.004*) and brand loyalty (Sig. = 0.010*), had significant difference between below bachelor's degree and bachelor's degree at significant statistics 0.05.

Table 5: One-Way ANOVA analysis the influence of educational level on perceived destination brand equity

Destination Brand Equity	SS	df	MS	F	Sig.
Brand Awareness	6.425	2	3.213	6.475	0.002*
Brand Image	6.822	2	3.411	5.210	0.006*
Brand Quality	3.955	2	1.977	4.455	0.012*
Brand Value	7.723	2	3.862	5.899	0.003*
Brand Loyalty	7.695	2	3.848	5.856	0.003*
Overall	6.305	2	3.153	8.174	0.000*

Note: * $p< 0.05$

Hypothesis 5: Tourists' resident region significantly influence destination brand equity

One-Way ANOVA analysis in Table 6, shows that tourists' resident region had significant difference on destination brand equity (F = 2.138, Sig. = 0.048*) in overall and the dimensions of brand awareness (F = 3.535, Sig. = 0.002*), brand image (F = 2.317, Sig. = 0.033*), and brand loyalty (F = 2.648, Sig. = 0.016*). However, tourists' resident region had no significant difference on the dimension of brand quality (F = 1.826, Sig. = 0.093) and brand value (F = 1.696, Sig. = 0.121). Thus, hypothesis 5 was supported.

The further finding by testing the differences between the paired averages with the Scheffe's method found that the dimension of brand awareness, brand image, and brand loyalty had a significant difference between regions at significant statistics 0.05

Table 6: One-Way ANOVA analysis the influence of resident region on perceived destination brand equity

Destination Brand Equity	SS	Df	MS	F	Sig.
Brand Awareness	10.415	6	1.736	3.535	0.002*
Brand Image	9.111	6	1.519	2.317	0.033*
Brand Quality	4.887	6	0.814	1.826	0.093
Brand Value	6.756	6	1.126	1.696	0.121
Brand Loyalty	10.434	6	1.739	2.648	0.016*
Overall	5.039	6	0.840	2.138	0.048*

Note: * $p< 0.05$

Hypothesis 6: Tourists' occupation significantly influence destination brand equity

One-Way ANOVA analysis in Table 7, shows that tourists' occupation had no significant difference on destination brand equity (F = 1.788, Sig. = 0.088) in overall and the dimensions of brand image (F = 1.384, Sig. = 0.210), brand value (F = 0.867, Sig. =0.532) and brand loyalty (F = 0.725, Sig. = 0.651).

However, tourists' occupation had significant difference in the dimension of brand awareness (F = 2.755, Sig. = 0.008*), brand quality (F = 2.689, Sig. = 0.010*). Thus, hypothesis 6 was not supported.

The further finding by testing the differences between the paired averages with the Scheffe's method found that the dimension of brand awareness and brand quality had a significant difference between occupations at significant statistics 0.05

Table 7: One-Way ANOVA analysis the influence of occupation on perceived destination brand equity

Destination Brand Equity	SS	Df	MS	F	Sig.
Brand Awareness	9.537	7	1.362	2.755	0.008*
Brand Image	6.433	7	0.919	1.384	0.210
Brand Quality	8.256	7	1.179	2.689	0.010*
Brand Value	4.081	7	0.583	0.867	0.532
Brand Loyalty	3.430	7	0.490	0.725	0.651
Overall	4.932	7	0.705	1.788	0.088

Note: * $p < 0.05$

Hypothesis 7: Tourists' average income/month significantly influence destination brand equity

One-Way ANOVA analysis in Table 8, shows that tourists' average income per month had significant difference on destination brand equity (F = 3.704, Sig. = 0.003*) in overall and the dimensions of brand awareness (F = 6.534, Sig. = 0.000*), brand quality (F = 4.261, Sig. = 0.001*) and brand loyalty (F = 2.242, Sig. = 0.050*).

However, tourists' average income per month had no significant difference in the dimension of brand image (F = 1.761, Sig. = 0.120) and brand value (F = 2.126, Sig. =0.062). Thus, hypothesis 7 was supported.

The further finding by testing the differences between the paired averages with the Scheffe's method found that the dimension of brand awareness, brand quality, and brand loyalty had a significant difference between average income per month at significant statistics 0.05

Table 8: One-Way ANOVA analysis the influence of average income on perceived destination brand equity

Destination Brand Equity	SS	Df	MS	F	Sig.
Brand Awareness	15.575	5	3.115	6.534	0.000*
Brand Image	5.830	5	1.166	1.761	0.120
Brand Quality	9.242	5	1.848	4.261	0.001*
Brand Value	7.030	5	1.406	2.126	0.062
Brand Loyalty	7.429	5	1.486	2.242	0.050*
Overall	7.156	5	1.431	3.704	0.003*

Note: * $p < 0.05$

6. Discussion

The purpose of this study is to examine how the variation of demographic characteristics of Thai tourists influence destination brand equity toward Hua Hin destination. Generally, Thai tourists tend to rely on the destination brand they expect to visit. The lack of demographic characteristics of tourists will lead the inaccurate marketing tools for Hua Hin destination in the deepening competition and the effective branding strategy to win the target consumer (Aaker, 1997). Tourists treat tourism destinations as products, perceive them as brands, and make a final selection based on persuasive brand equity (Allan, 2004).

The research instrument has been adjusted to the theoretical model for its application with the tourists who had visited Hua Hin, thus making it possible to confirm the hypotheses put forward. This study can be used as tools of differentiation strategy thus making competitiveness and better destination branding strategy possible. The results of analyzing the demographic characteristics influencing brand equity factor on tourism destinations have shown that the educational level, resident region and average income per month have an impact on destination brand equity. It supported that education would result in the consumption of better quality products and services. In addition, tourists with different occupations result in different needs of products and services. Moreover, tourists with medium-income and low-income have a larger market size than high-income consumers.

Moreover, relationships between the cognitive, affective and overall image components of image and the potential tourist's socio-demographic characteristics were found with reference to gender, age, employment status and incomes (Beerli & Martin, 2004). Therefore, the analysis result confirms that the demographic characteristics of the tourists can be the marketing data for creating the marketing strategy and brand strategy to enhance the image and reputation for the accurate segmentation, target, and position.

7. Suggestion

(1) This type of research can be implemented in other viewpoints of destination modules on tourism such as destination marketing, destination capacity, destination strategy. The demographic characteristics in more detail will accurate the finding of tourist segmentation, targeting and positioning for the competitive marketing mix in this changing marketing element. The implication of results may be useful for Hua Hin municipality.

(2) Future research should examine the supply side of the tourism supply chain such as the government sector, business sector and community by in-depth interviewing. The viewpoints of supply will receive the data of their capacity and the way to match their development plan of tourism products and services in their areas.

8. Acknowledgment

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GENDER DIFFERENCE TOWARDS SOCIAL MEDIA USAGE AMONG THAI ELDERLY

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ABSTRACT

The objectives of this study are to investigate the current status of social media usage of Thai elderly, to explore their opinions toward factors associated with social media usage and to investigate the gender difference toward factors associated with social media usage. The study was conducted with Thai elderly who are 55 years old or older; they are baby boomers in Bangkok Metropolitan Region. Results indicates that gender differences exist within social media usage; female elderly use LINE and Facebook, the popular social platforms in Thailand, and post very often more than males. However, male elderly spend more hours on smart phone than females. The majority of elderly use social media to stay in touch with friends. Males report for sharing opinion on social media than females.

Keywords: Gender Difference, Thai elderly, Social Media Usage

1. Introduction

Age structure of the population in many countries are changing into more ageing society. This demographic phenomenon is a consequence of declining fertility and increased longevity. This ageing of the population is having profound effects on social and economic dimensions of many countries including Thailand. Thailand has been moving closer towards an ageing society since 2005, as the number of citizens aged 60 or older has steadily risen (NESDA, 2019).

The world has seen a rapidly ageing population with respect to the increasing social media. In the same way that social media has become part of the lives of children and young people it is being used by senior citizens as well. Social media statistics from 2019 show that there are 3.2 billion social media users worldwide, and this number is only growing. That equates to about 42% of the current population (HelpAge International, 2019). Similarly, in Thailand the total number of active social media users in 2018 is 51 million accounted for 74% of the total population (Herhold, 2018)

A growing concern related to the growth of the elderly population is social isolation. Social isolation can be understood as a low quantity and poor quality of contact with other people. This includes the number of contacts a person has, his feelings of belonging, and how satisfactory his relationships and his engagements with others are (Coto et al., 2017). Social media has proven to be an effective way of helping senior citizen improve independence outcome. It can play an important role helping the elderly to keep social connections.

For many decades, gender differentiation has been studied as an interdisciplinary topic and within a variety of fields such as psychology and social science. It is universally accepted that behavioral differences are rooted in the different biological roles, and are reinforced by a society's values and cultural beliefs (Whiting & Williams, 2013). The study of social media usage is essential for understanding how gender role influences the differences observed in the structure and evolution of these social interactions. Although it does not provide answers regarding the origins of the gender differences in social behavior, it can help identify and understand these discrepancies to a larger extent.

2. Research Objectives

The objective of this study is to collect useful data on the elderly and their usage of social media in order to add up more insight information for any related organizations to plan an effective policy to support better use of the social media for them in the future. Specifically, the objectives of this study are

1. To investigate the current status of social media usage of Thai elderly
2. To explore their opinions toward factors associated with social media usage
3. To investigate the gender difference toward factors associated with social media usage

3. Related Literature Review

3.1 Thai Elderly and Social Media Usage

Thailand had reached the status of an aged society in 2005 and the elderly population is increasing at the unprecedented rate of 4% per year. In 2016, Thailand had a population 64.4 million. Of the total 9.8 million were 60 years old or older (15.2%). Thailand will become a super aged society in year 2031 when 28% of population will be elderly (Institute for Population and Social Research, Mahidol University, 2018)

As people age, their physical capacities begin to degenerate, they have limited mobility and their response time is much slower. Such a limitation in their mobility often results in less participation in social activities, which may tend to increase feelings of loneliness, and decrease morale and satisfaction with life (Lin and Chou, 2013). Social needs are important basic human needs. Older adults need to stay healthy and community-dwelling. The feeling of connectedness to others and to a community or neighborhood contributes to wellbeing as well as a feeling of independence.

It is also well known that for the elderly, their health and well-being depends, to a greater extent, on the emotional and social relationships they have with their family members and friends (Cornejo et al., 2013). Technology can play an important role helping the elderly to keep these social connections. It can improve their quality of life by reducing their sense of isolation, contributing to their psychological well-being and sense of empowerment, and supporting their relationships regardless of time and location (Cornejo et al., 2013, Lin and

Chou, 2013). Older adults represent the fastest growing portion of the Thailand's population and their social needs can be satisfied through participation in social networks. Social media is a means for connectedness, participation and independence of the older adult.

However, when considering the social media use by age groups, it was found that the age 18-34 year group has the highest rate of social media use 62.40% while the elderly group has lower rate of 7.4%

Table 1: Social Media Audience Profile of Thailand

Age	Percent of Social Media Use		
	Female	Male	Total
13-17 years	2.70%	2.10%	4.80%
18-34 years	30.30%	32.10%	62.40%
35-54 years	12.80%	12.60%	25.40%
> 54 years	3.90%	3.50%	7.40%

Source: Herhold, 2018

3.2 Gender and Social Media Usage

From Table 1, percent of social media use between female and male of age more than 54 year group is slightly different. There is little reason for concern about sex inequalities in social media access and usage. However, male and female tend to use social media differently. Rowntree (2018) reported that gender differences in frequency and intensity of social media usage remain. A number of studies have found significant gender differences in social media use, although gender differences are not consistent across studies (Kasahara et al., 2019; Meri-Tuulia et al., 2017; Verma & Dahiya, 2016)

Technology has its own gender divide in favor of men. Our culture is defining computers as pre-eminently male machines (Lockheed, 1985). Based on a meta-analysis of English and American studies on gender differences and computer attitudes, Whitley (1997) concludes that, in general, females have less positive computer attitudes than males. However, some studies found no gender difference for computer behavior. A Canadian study among teacher candidates, for instance, did not establish a difference in computer attitudes between men and women (Shapka & Ferrari, 2003).

It seems logical, if not right, for women to be under-represented in social media too. Apart from this general reason, the attitude of women versus men towards voicing opinion, particularly in relation to the response they get, plays a significant role towards relative female silence in social media. This reticence of women in social media is largely a result of the unfavorable, and even often abusive, responses they get purely on the basis of their gender (Kasahara et al., 2019).

Studies in the United States have also shown that there are gender differences in social media usage. A large study conducted in 2015 found that Instagram and Snapchat are dominated by girls in the United States with 61% of girls using Instagram compared to 44% of boys and 51% of girls using Snapchat compared to 31%

of boys (Lenhart, 2015). Videogames are more male oriented with 84% of boys playing video games online compared to 59% of girls. Another study conducted in 2013 found that 60% of adolescents have a private Facebook profile, which means that they only allow their friends to see their profile (Madden et al., 2013). This was significantly different by gender with more females (70%) having a private profile compared to males (50%). However, as the social media becomes more and more integrated into society and as more people have access to and use social media, the so-called gender gap, if it did exist at all, would now be narrowing. But here, too, there is no consensus. This leads us to question the extent to which social media usage differ between men and women.

4. Research Methods

This study used a cross-sectional study design and it was conducted at Bangkok Metropolitan Region. The questionnaires were distributed to Thai citizen who are 55 years old or older; they are baby boomers who were born before 1964.

The administered questionnaire yielded 392 completed surveys. The sample consisted of 216 females (55%) and 176 males (45%) ages 55 to 82 years old. The mean age was 65.25 years (SD 2.324). The questionnaires were handed to those elderly who attended National Elderly Day 2019 arranged by Department of Older Person (DOP), Ministry of Social Development and Human Security, during 9-10 April, 2019 at Government Complex, B Building. The questionnaires were analysed by using percentage, mean, standard deviation, Z-test and Chi Square

5. Results

5.1 The Elderly Experience and the Usage of Social Media

According to the survey, at present most elderly (80.7%) did not use social media at all and female elderly were found that had used less of social media than male ones (59.5% and 71.3% respectively). For ones who have used the social media, it was found that most of these people have been using social media for more than 5 years (30.3%) and less than 6 months (18.2%). Male elderly showed that they had more experience using social media than those female ones by using the social media for more than 5 years (52.9%) and the females who had been using the social media less than 6 months (25.0%). For people who were between 55-65, most of them have been using the Internet for more than 5 years (33.3%) but the ones who were 75 or older have no experience in using the social media at all.

5.2 Social Network Platforms

Frequencies were run to gain percentages for the data. LINE (55%) had the largest percentage of elderly using it daily while Instagram had the lowest percentage (19%). Additionally, 39% of elderly reported that they post to LINE very often compared to only 16% posting very often to Instagram. However, Facebook (35%) had the second highest percentages of elderly posting very often to its sites. These results can be seen in Table 2.

Table 2: Social Media Usage

Social media platform	Percent using daily	Percent posting very often
LINE	55	39
Youtube	50	12
Facebook	21	35
Messenger	13	21
Instagram	19	16

Gender Differences for Social Media Platforms

LINE and Facebook both had significant gender differences in usage. According to a chi-square test of independence, there was a significant relationship between elderly's gender and how often they post material on LINE, $\chi 2 = 14.95$, $p<.01$. As seen in Table 3, males were more likely to report never posting (41%) than females (37%), and females were more likely to report posting very often (25%) than males (14%). A similar significant relationship was found for Facebook, $\chi 2 = 13.78$, $p<.01$. Males were more likely to report never posting (36%) than females (26%), and females were more likely to report posting very often (23%) than males (12%). These results can be seen in Table 4.

Table 3: Percentages for Gender and Posting on LINE

Gender	Frequency of Posting on LINE				
	Never	Rarely	Sometimes	Often	Very Often
Male	41	10	17	19	14
Female	37	19	16	13	25

Table 4: Percentages for Gender and Posting on Facebook

Gender	Frequency of Posting on Facebook				
	Never	Rarely	Sometimes	Often	Very Often
Male	36	9	16	27	12
Female	26	12	21	18	23

5.3 Electronic Devices

The elderly used several devices to access social media. The results of this study indicated that 78% of elderly used smartphones, 36% used computers, and 8% used an iPad or tablet device to access the web. Elderly reported using smart phones the most with an average of 3.18 (SD=2.01) hours per day, iPad or tablet device were used with an average of 2.87 (SD=1.85) hours per day and computers were used the least with an average of 1.59 (SD=1.94) hours per day.

Table 5: Electronic Device Usage per Day

Electronic Device	Average Hours on Social Media
Smart Phone	3.18 (SD = 2.01)
Computer	1.59 (SD = 1.94)
iPad or Tablet Device	2.87 (SD = 1.85)

Gender Differences in Electronic Devices

According to a chi-square test of independence, there was a significant relationship between an elderly's gender and how many hours a day they spend using a smart phone, $\chi 2 = 14.79$, $p<.05$. As seen in Table 6, the percentage of males (9%) using a smart phone more than four hours a day was three times as high as females (3%). Additionally, females (55%) were more likely to report using a smart phone less than one hour a day than males (34%).

Table 6: Percentages for Gender and Hours Spent on a Smart Phone per Day

Gender	Time Spent on a Smart Phone				
	<1	1-2	2-3	3-4	>4
Male	34	23	16	18	9
Female	55	15	15	12	3

5.4 Reasons for Social Media Usage

The elderly used social media for several reasons. The results of this study indicated that 42% of elderly used social media to stay in touch with what friends are doing, 40% used social media to stay up-to-date with news and current events, 39% to fill up spare time, 37% to find funny or entertaining content, 32% to share photos or videos with others and 30% to share opinions.

Gender Differences in Reasons for Using Social Media

A chi-square test of independence found that there was a significant relationship between a elderly's gender and reason to share their opinion, $\chi 2 = 13.67$, $p=.05$. As seen in Table 7, females were less likely to share their opinion (45%) than males (32%).

As seen in Table 7, the percentage of males (20%) sharing opinion very often was about 2.5 times as high as females (8%).

Table 7: Percentages for Gender and Sharing Opinion

Gender	Frequency of Sharing Opinion				
	Never	Rarely	Sometimes	Often	Very Often
Male	32	15	16	17	20
Female	45	19	17	11	8

6. Discussion of the Findings

There is only minor portion of elderly who use the social media in their daily lives. The age factor was mentioned in a study conducted by National Statistical Office (2019) which found out that the access to the Internet is decreased by the passing age. Hogeboom et al (2010) had also supported this hypothesis in their study showing that 62 % of people who were in their 50-64 years old had been using the Internet but there were only 10 % of ones who were in their 65 years or older that used the Internet. The social media usage also had some relationships with both genders that numbers of female elderly who used the social media was lower than males. The same result in genders and the Internet also showed in Ferro et al. (2011) who found out that female had negative relationship with the access to the Internet.

The results of this study supported the hypothesis of significant gender differences occurring within social media platform. LINE and Facebook both had significantly more females using those sites often. This is similar to the results found in the Thailand (Mahittivanicha, 2019) and suggests that social media sites are being used in a similar way by Thai elderly. The findings are consistent with Atanasova's findings (2016) that females use social media to connect with people and prefer visual platforms while males often use social media to find information and prefer text platforms.

The results also supported the significant gender differences on times spent on social media via smart phones. Thai elderly had mostly used social for less than one hour per day. However, males spent longer hours per day on social media via smart phone than females. In terms of usage objectives and the activities, the data showed that most elderly liked to use the social media for connecting with their friends and for staying up-to-date with news and current events. These findings were supported by Whiting and Williams (2013) who stated that social media was used for social interaction for 88 percent and information seeking for 80 percent.

7. Recommendations

This paper demonstrates the current status of social media usage of Thai elderly. Thai elderly has the lowest rate of social media usage compared with the other age groups. And the main reason of social media usage is social interaction: a place to interact and socialize with others. It is very challenge to narrow down this gap and to increase their engagement with the others. Social media gives them a social life. The government agencies should promote the other beneficial usage of social media and to provide training on how to use social media as a means of learning new skills and gaining new knowledge.

The study also provides evidence that gender is influencing social media usage. The future study should look at other factors influencing social media usage such as attitudes, privacy and cyberbullying.

8. Acknowledgement

At present, Thai society is confronting the process of population ageing. This population dynamic poses serious challenges for traditional family support, communities' ability to provide backup support for older persons and government policies. A series of national surveys of the older population together with related analyses and

extensive studies by Thai and foreign researchers in the academic community provide important information for evidence-based policies and programs for improving the welfare of elderly.

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SONGKHLA TOWARDS WORLD HERITAGE SITE STATUS: A LINGUISTIC LANDSCAPE LENS' VIEW OF THE ABILITY TO ACCOMMODATE FOREIGN TOURISTS IN SONGKHLA TOWN

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ABSTRACT

This paper aims to describe how languages are visually used in Songkhla, one of Thailand's most important port cities, that is striving to be inscribed on the UNESCO list as World Heritage Site. Its 'Songkhla towards World Heritage Site' project and movement appear to successfully display the readiness to welcome tourists from around the world in terms of its charming traditional historical architectural style. However, whether or not, this old town is ready to accommodate cross-cultural barrier of communication between the site itself and its foreign tourists is still overlooked. By investigating language used on a collection of signs and the opinions of foreign tourists travelling in Songkhla toward the language used on the signs, it is found that the signs are largely in monolingual. Monolingual Thai are mainly used on the signs to communicate with customers. The main results from the interview revealed that even though the tourists quite understand the information on the signs, they want more English to be used on the signs. This study is hoped to shed light on the importance of collecting empirical data for the analysis of linguistic landscape and the contribution to the understanding of the readiness of Songkhla to be one of the World Heritage Site tourist attractions and its ability to accommodate foreign tourists through publicly displayed language around its famous areas.

Keywords: Language and Tourism, Linguistic landscape, Songkhla, World Heritage Site

1. Introduction

Songkhla towards World Heritage Site Status

Songkhla, one of Thailand's most important port cities, is striving to be inscribed on the UNESCO list of World Heritage Sites. Its 'Songkhla towards World Heritage Site' project appears to have successfully its readiness to be one of the historic sites in the list of World Heritage Sites in light of the charming traditional architectural style of the buildings in its old town. In 2018 the number of tourists visiting Thailand exceeded 38million which was up 7.5 % from 2017 (Bangkok Post, 2019). In 2017 Songkhla was listed as seventh in the top ten provinces of Thailand based on the income earned from tourism from both Thai and foreign visitors (Ministry of Sport and Tourism, 2019). There appears to be a bright future for Songkhla as one of the most famous tourist destinations in Thailand and the outcome of its 'Songkhla towards World Heritage Site' project, is expected to be an increase in the number of visitors especially from outside Thailand.

As "Food is one of the essential elements of the tourist experience" (Hall et al., 2003: p. 1), food tourism has become very popular with tourists who want to taste a variety of unique types of food from many areas throughout the world (Hall et al., 2003). Food tourism has grown extensively all over the world and has also become one of the most dynamic and creative aspects of tourism. It has been reported that in 2015 Thailand earned456,000 million Baht from food tourism amounting to20 percent of the total income of the tourism industry (Suanpleng et al., 2016 as cited in Chamnancha, 2018). Specifically, in Songkhla, the Tourism Authority of Thailand, (2019) lists various types of tourist attractions appropriate for both Thai and foreign visitors to experience. Not only its beautiful beaches, Samila Beach and Chatathat Beach, where the mermaid statue is a must to see when visiting the town, sea foods and various kinds of local food is a must to try when visiting the town. Along Samila Beach, the most beautiful beach of Songkhla coastline, is Laem Son On and along Chalathat Beach is Kao Seng area. They are the two areas that are full of various types of food available for both locals and visitors. Hence, to align with the 'Songkhla towards World Heritage Site' project and to promote food tourism especially among international tourists, the signs of restaurants, cafés, and bars in Songkhla should be intelligible for the tourist group.

The Linguistic landscape

Investigating languages used in shop signs and other various kinds of public signs used in a specific area, is often referred to as 'linguistic landscape' study. Linguistic landscape (LL) has been defined as "The language of public road signs, advertising billboards, street names, place names, commercial shop signs, and public signs on government buildings combines to form the linguistics landscape of a given territory" (Landry & Bourhis, 1997:25).One of the main reasons why investigating public signage is vital especially for this research is because the languages used in public signs can indicate what language are locally relevant, or give evidence of what languages are becoming locally relevant (Kasanga, 2012).

Languages in LL perform the informational function when they appear in the signage in a given area indicate the possibility that those languages can be used "to communicate and to obtain services with in public and private establishments" (Landry & Bourhis,1997: 25). The preferential use of English, for example, in commercial signs in the territory where it is a foreign language can indicate the perception of being international and future orientation (Piller, 2003).

2. Research Objective

This paper aims to describe the aspects of the linguistic landscape in Songkhla city, mainly in its tourist spot areas. The two main objectives are:

1. To investigate what languages are used in café and restaurant shop signs in Songkhla Town.
2. To elicit foreign tourists' opinions toward the language used in shop signs in Songkhla Town.

3. Research Framework

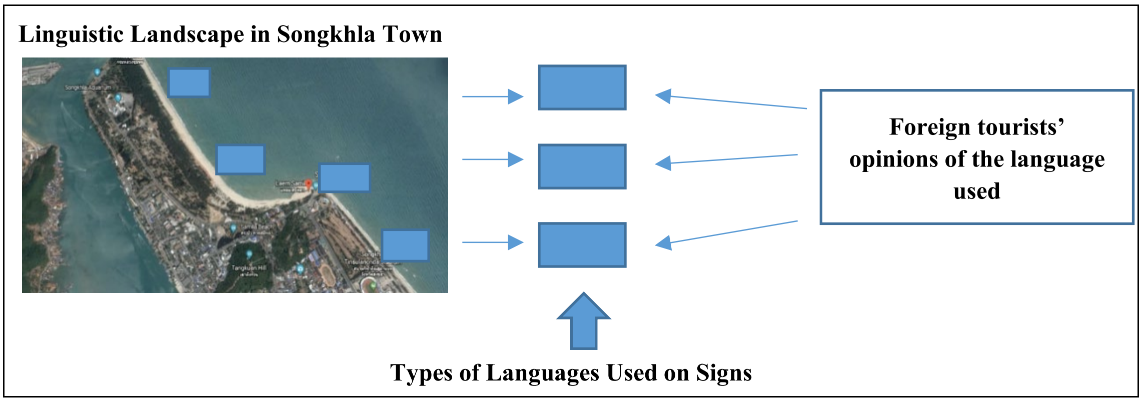

Figure 1 Research Framework

4. Research Methodology

This research is driven by quantitative methods. The first objective aims to find out what languages are used in name signs of restaurants and cafés in along the two famous beaches in Songkhla Town. The data is collected by two methods. The data is collected by taking digital pictures of all visible signs on the streets at Laem Son On along the beach to Kao Seng areas (please see Figure 1 for the landscape of the areas). To ensure the quality of the pictures taken and to decrease the chances of having defects or low readability, the research used the camera rather than a mobile phone equipped camera. The unit of analysis of LL in this study is "any pieces of text within a spatially definable frame" (Backhaus, 2007: 66). The shop signs gathered from the investigated areas are counted and classified according to the languages used on the signs. The second method is to collect data by mean of semi-structure interview with questionnaire checklist with the aim to elicit foreign tourists understanding and opinion toward the language used on the signs. They are three main questions to ask the respondents:

- the understanding of the information on the signboards;
- the problems when the tourists read the signboards; and
- the suggestions about the language used on the signboards

5. Research Findings

There are 85 signs collected along Laem Son On area , Chalathat Beach to Kao Seng. 50 sings are monolingual signs. Of these 50 monolingual signs, the majority (47 signs) are monolingual Thai. The remaining single-language signs are monolingual English (2 signs), and Malay language in Melayu Rumi script (1 sign). In addition, 33 signs were bilingual signs. The majority of these were written in Thai-English languages (23 signs). The second is Thai-Malay (in Melayu Rumi script) languages (7 signs). Lastly, Malay language in Melayu Rumi-Melayu Jawi script (3 signs). Moreover, two signs are multilingual signs. This category consists of one Thai-Chinese-English (in Melayu Rumi script) and one Thai-Malay (in Melayu Rumi script)-English sign.

Table1: Percentages of the language used on the signboards

<table>
<tr><th>Total</th><th>Types</th><th>Languages</th><th>Numbers</th></tr>
<tr><td rowspan="8">85</td><td rowspan="3">Monolingual
50</td><td>Thai-only</td><td>47</td></tr>
<tr><td>English-only</td><td>2</td></tr>
<tr><td>Melayu Rumi script</td><td>1</td></tr>
<tr><td rowspan="3">Bilingual
33</td><td>Thai-English</td><td>23</td></tr>
<tr><td>Thai-Malay (Melayu Rumi)</td><td>7</td></tr>
<tr><td>Melayu Rumi-Melayu Jawi</td><td>3</td></tr>
<tr><td rowspan="2">Multilingual
2</td><td>Thai-Chinese-English</td><td>1</td></tr>
<tr><td>Thai- Malay
in Melayu Rumi script-English</td><td>1</td></tr>
</table>

Results from the Interview

The semi-structured interview explores the opinions of 30 foreign tourists about understanding the information and on the signs of restaurants, cafés, and bars at Laem Son On, Chatlathat Beach to Kao Seng. It also explores the problems that they have faced when they read the shop signs and their suggestions about the shop signs. The demographic information regarding the nationalities of the respondents are as follows: 8 Malaysians, 6 Germans, 4 Russians, 3 Indonesian, 2 Americans, 2 Chinese, 2 Danishes, 1 Canadians, 1 Czech and 1 Singaporean (1 or 3.33%). Additionally, 15 of the respondents are 15 males and 15 are males.

Table 2: The likert-scale rating of understanding of the information on the signs

<table>
<tr><td rowspan="2">The understanding of the information on the signs</td><td>Totally</td><td>Quite</td><td>Somewhat</td><td>Not at all</td><td>Total</td></tr>
<tr><td>3 (10%)</td><td>11 (36.67%)</td><td>7 (23.33%)</td><td>9 (30%)</td><td>100%</td></tr>
</table>

Table 2 illustrates the results of the question regarding foreign tourists' understanding of the shop signs. When asking about their understanding of the information on the shop signs, most of the respondents (11 or 36.67%) reported that quite understand the information on the shop sign. They quite understand what the signs is communicating to them when reading especially bilingual and multilingual shop signs (see Picture 5, 6 and 7 for examples). However, a large numbers of respondents (9 or 30%) also reported that they do not understand the shop signs at all especially the signs in monolingual Thai (see Picture 1 for an example). They stated that by merely looking at the signs they are not sure what kinds of food or service are being provided. Conversely, the 7 respondents (23.3%) said they somewhat understand the shop signs that are written in Thai and other languages. They said only a word in English for example ‘restaurant’, and ‘sea food’ on the signs help them a lot to comprehend the whole signs. 3 of the respondents (10%) reported they totally understand the shop signs that are visible to them because they can read English and Malay language.

Picture 1: Monolingual Thai

Picture 2: Monolingual Malay

Picture 3: Monolingual English

Picture 4: Bilingual sign in Thai-Malay

Picture 5: Bilingual in Thai-English

Picture 6: Multilingual sign in Thai-Chinese-English

Picture 7: Multilingual sign in Thai-Malay-English

When asking about the cause of problems they encounter when they read the shop signs, as shown in Table 3, 8 respondents (26.67%) reported that the used of ambiguous vocabulary used on the shop signs is the main source of the problem for them to comprehend the shop signs. While 9 respondents (30%) reported that when reading the signs using other languages which means using only the words from languages they do not understand are the main sources of the problem of understanding. 5 respondents (16.67%) said have problems with transliterated vocabulary used and 4 respondents (13.33%) have problems with translated words in a word to word pattern.

Table 3: The cause of the problems of the language used on the signs

The cause of the problems of the language used on the signs	Ambiguous	Inappropriate word choices	Transliterated words	Word to word translation	Other
	8 (26.67%)	4 (13.33%)	5 (16.67%)	4 (13.33%)	9 (30.00%)

In addition, the respondent also added that the design of the shop signs also play roles in making it difficult to comprehend the shop signs. These for examples, the font and the color is difficult to read.

When asking for their suggestion in order to improve the linguistic landscape around the area, most respondents said that the shop signs around this tourist area should be in the form of bilingual or multilingual shop signs. Providing only Thai language on the shop signs make it difficult for tourist to understand it.

6. Discussion

According to analyzing the data of the signs of restaurants, cafés, and bars at Laem Son On along the beach to Kao Seng, it is found that there are three types of languages used appeared. Monolingual Thai is used the most on the signboards followed by bilingual Thai-English shop signs. The languages used in the areas, as suggested by Kasanga, 2012, indicate that Thai language is locally relevant, and give evidence that English are becoming locally relevant to the areas. Other languages for example, English, Malay, and Chinese can be found but only in a small numbers of shop signs. Additionally, the most problems that the foreign tourists have faced about the signboards at Laem Son On along the beach to Kao Seng is about vocabulary which consists of the ambiguous vocabularies used on the signboards, the inappropriate vocabularies used, the transliterated vocabularies used, the translated words in a word to word pattern. According to analyzing the data it is also found that monolingual Thai or monolingual English is insufficient to support the foreign tourists who visit in these areas.

7. Suggestion

Therefore, there are some additional suggestions from interviewing 30 foreign tourists to improve the signs of restaurants, cafés, and bars at Laem Son On along the beach to Kao Seng. Most of the foreign respondents suggest that there should have more English signs or other multilingual signs such as Chinese to support foreign tourists. Hence, this paper has found that there is a need for the intelligibility of the communication between its locals (in this case shop signs) and its foreign tourists. We would like to suggest that in oder to make Songkhla to be ready to accommodate cross-cultural barrier of communication between the site itself and its foreign tourists, the government or related organizations should promote the use of multilingual signs especially the shop or restauant name signs. This would help creating better experience for toursits who love food. In return this would help promoting food tourism which is, as menrtioned by Hall et al., (2003: 1) one of the essential element of the tourist experience. As this paper describes a small-scale research project on how languages are visually used in Songkhla, further research is neeeded to invesitgate findings with a larger sample size by interviewing more Thai and foreign toursits.

8. Acknowledgements

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SUSTAINABLE CREATIVE TOURISM DEVELOPMENT POTENTIALITIES IN RATCHABURI PROVINCE

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ABSTRACT

Creative tourism is the recent trend of tourism since plenty of tourists are not only travelling for leisure but also learning experiences and participation in a community lifestyle and culture. The researcher aimed to investigate creative tourism resources in Ratchaburi province and study potentialities to develop sustainable creative tourism in Ratchaburi province. Qualitative research tools, tourism resources audit in area and in-depth interview among 32 key informants were applied.

Since creative tourism has been evolved from cultural tourism, cultural resources were audited and found that creative tourism resources in Ratchaburi province are Ratchaburi Chinatown, Damnoen Saduak Canal, Koi Kee Old Market, Lao Tak Luk Old Market, Damnoen Saduak Floating Market, wood craft and jar mounding, Chinese vegetarian festival, Shrine of Guan Yu God and Shrine of Berk Prai Goddess, Eight Ethnic Cultural Center, Om Yim market, Baan Pong Krating Bon cultural center, O Poi Market, Khubua Community Market and Museum, the Ancient Town of Khubua, Talaa Thai-Yuan Market, Wat Muang Folk Museum, Sa Sook Jai Market, Daan Kanon Market and Nang Yai Shadow Play.

Regarding the study of potentialities to develop sustainable creative tourism in Ratchaburi province, it found that Ratchaburi province has (1) a potential of tourism resources in the area but need to develop a public transportation service between tourist attractions, (2) a potential on sustainable resource management but still lack of sustainable tourism development strategic plan, waste management in efficient way as well as life and asset security and disaster preparedness, (3) has a potential of stakeholders participation but it should be strengthened as a network, and (4) has a potential of awareness cultivation but need more implementation of activities for raising stakeholders' awareness.

Keywords: Creative Tourism, Sustainable Tourism, Tourism Development

1. Introduction

Creative tourism is the recent trend of tourism since plenty of tourists are not only travelling for leisure but also learning experiences and participating in community activities. Richards and Raymond (2000) initially determined the definition of creative tourism that it is a tourism which offers visitors an opportunity to develop their creative potential through active participation in courses and learning experiences from characteristics of the holiday destination where they are taken. In the meantime, "Amazing Thailand", an international inbound tourism promotion campaign was launched in Thailand during the year 1998 – 1999 under the concepts; amazing shopping paradise, amazing taste of Thailand, amazing cultural heritage, amazing arts and lifestyle, amazing world heritage, amazing sports and entertainment, amazing natural heritage, amazing gateways and amazing agriculture heritage (Gombaez, 1998). It can prove that Thailand is also a world cultural and creative tourism destination. Ratchaburi, a province located at the western of Thailand, was recently named by Tourism Authority of Thailand as an "Art Community" under 12 can't miss cities campaign. In order to appreciate the art of tourism at Ratchaburi province, tourists can experience and participate in its community's culture through a creative tourism. In addition, the art of Ratchaburi province is originated from its various ethnic cultures, therefore Ratchaburi province can be one the best creative tourism destination of Thailand.

Regarding the global awareness of sustainable development toward the world's future, United Nation (2016) has announced 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development. Over the next fifteen years, these goals must be universally applied. It is resulted that each industry is encouraged to find out a solution for sustainability in its own way. Tourism is one of the most local resources consumed industry since its products is natural, cultural and environment resources of each local area, all type of tourism must be managed under sustainable concept in order to save the world.

To comply with the United Nation's Sustainable Development Goals (SDGs), creative tourism in Ratchaburi province should be sustainably developed. Hence, this study is not only aim to understand where the creative tourism resources located in Ratchaburi province but also study sustainable development potentialities which is a supporting matter in order to build its sustainable future.

2. Literature Review

Creative tourism is a form of tourism which is developed from cultural tourism (Richards and Raymond, 2000). It is a tourism that gives tourists an opportunity to develop their creative potential through participating in learning activities with real experiences. Tourists will create value for their travel experiences from the purchase of goods and services, get a direct experience in learning and appreciating local culture at a deep structure level in order to strengthen the wisdom of tourists (Dhamabutra, 2015).

Creative tourism resource audit, there are 5 kinds of tourism resources; natural tourism resources, cultural tourism resources, tourism events resources, tourism activities resources, and tourism services resources (Institute of Tourism Development for Environmental Conservation, 2005). Since a creative tourism was developed from cultural tourism, the cultural tourism resources of Ratchaburi province were audited in order to find out its tourist attraction that can be developed as a creative tourism resource.

Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development calls for concerted efforts towards building an inclusive, sustainable and resilient future for people and planet (United Nation, 2017).

Sustainable tourism development potential consists of 4 items; the potential of tourism resources in the area, the potential for sustainable resource management, the potential of stakeholders' participation, and the potential of awareness cultivation (Dhamabutra, 2008). Potentialities of Ratchaburi province in sustainable creative tourism development will be examined according to these 4 aspects.

3. Research Objectives

(1) To investigate creative tourism resources in Ratchaburi province

(2) To study potentialities to develop sustainable creative tourism in Ratchaburi province

4. Research Framework

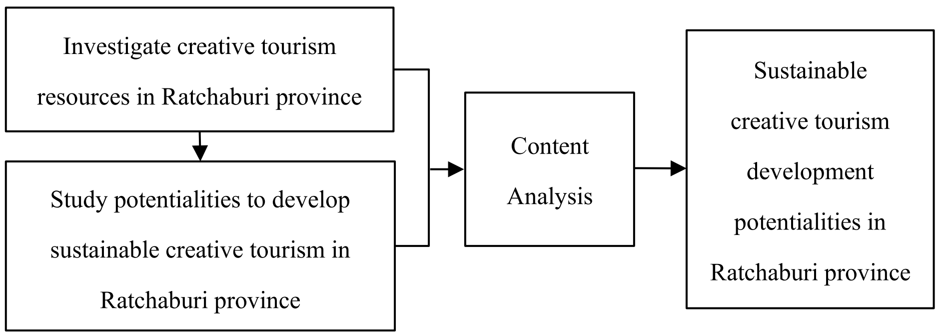

Figure 1 Research Framework

5. Research Methodology

This qualitative research was conducted by applying qualitative tools; creative tourism resource audit in Ratchaburi area and in-depth interview to key informants.

Cultural tourism resources which located at all 10 districts of Ratchaburi province; Mueang Ratchaburi district, Chom Bueng district, Suan Phueng district, Damnoen Saduak district, Ban Pong district, Bang Phae district, Photharam district, Pak Tho district, Wat Phleng district, Ban Kha district, were audited in order to investigate creative tourism resources in Ratchaburi province.

Figure 2 Ratchaburi's Districts Map

Key informants from government, private sectors, people and tourists in Ratchaburi province, totally 32 samples, were in-depth interviewed regarding potentialities in order to develop sustainable creative tourism in Ratchaburi Province.

Table 1 Population and Sample

Population	Sample
Government	8 key informants
Private Sectors	8 key informants
People	8 key informants
Tourists	8 key informants
Total	32 key informants

Content analysis was applied to analyze data both non-verbal (Tourism resources audit) and verbal (in-depth interview) interaction. As well as a literature was reviewed in order to find out more reliable support information related to creative tourism resources.

6. Research Findings

6.1 Creative tourism resources in Ratchaburi province

After auditing (survey) creative tourism resources in Ratchaburi province, it founds that creative tourism resources can be clarified as following:

6.1.1 Ratchaburi Chinatown (Thai-Chinese), located at Mueang Ratchaburi, Damnoen Saduak and Ban Pong district. Damnoen Saduak Canal was excavated by Chinese for water transportation and agriculture waterway. Koi Kee Old Market, Lao Tak Luk and Damnoen Saduak Floating Market are the remaining merchandising and cultural heritage which allows tourism to experience and participate in a local lifestyle.

Chinese knowhow such as wood craft and jar mounding is also things tourists can learn and practice. In addition, tourists can participate in Chinese vegetarian festival and also worship Guan Yu God and Berk Prai Goddess.

Figure 3 Koi Kee Old Market

6.1.2 Eight Ethnic Cultural Center and Om Yim market (Thai-Song), located at Chom Bueng distict. Tourists can learn and participate in Thai-Song cultural activities such as traditional ceremony, dancing and costume wearing. In addition, other Thai-Song communities can be found at Damnoen Saduak, Pak Tho and Bang Phae district.

Figure 4 Traditional dancing of Thai-Song at 8 Ethnic Cultural Center

6.1.3 Baan Pong Krating Bon cultural center (Thai-Karen), located at Ban Kha district. Tourists can experience the real Thai-Karen lifestyle such as food, culture, ceremony and costume. Another recent place to visit for experiencing Thai-Karen lifestyle is at O Poi market in Suan Phueng district. Tourists can also wear Karen traditional costume and participate in a morning merit besides Pha Chi River.

Figure 5 Morning merit besides Pha Chi River

6.1.4 Khubua Community Market and Museum (Thai-Yuan), located at Khlong Suwankhiri temple at Mueang Ratchaburi distict. Tourists can enjoy at the large market place featuring food and crafts from many of Thailand's ethnic groups and learn history and culture of Thai-Yuan at the museum. Besides the market and museum, there is the Ancient Town of Khubua which is the oldest ancient remains in Ratchaburi Province. In addition of learning and participating in Thai-Yuan culture, Tourists can visit Talaa Thai-Yuan Market at Na Nong temple, it is also located at Mueang Ratchaburi district.

Figure 6 Khubua Community Market

6.1.5 Wat Muang Folk Museum (Thai-Mon), located in Muang temple at Ban Pong district. Muang temple was an old temple constructed around the end of the Ayutthaya era. The museum has become a treasure of knowledge about Mon. It is also the library where tourists can search for the history, ways of life and culture of Mon local community from the past until now. In order to participate more in Mon community, Sa Sook Jai and Daan Kanon Market (Thai-Mon), located at Photharam district, are another must go tourist attractions where Nang Yai Shadow Play is performed. Tourists can appreciate the traditional art and enjoy shopping Mon community's products.

Figure 7 Nang Yai Shadow Play at Daan Kanon Market

6.2 Potentialities to develop sustainable creative tourism in Ratchaburi province

There are 4 aspects of sustainable creative tourism potentialities, including the potential of tourism resources in the area, the potential on sustainable resource management, the potential of stakeholders participation and the potential of awareness cultivation, the finding of in-depth interview regarding those aspects are as following:

6.2.1 Potential of tourism resources in the area, key informants have evaluated the current situation based on below sub-potentials:

Table 2 Potential of tourism resources in the area

Agreed	Agreed with Suggestion	Disagreed
(1) Climate and location suitable for tourism. (2) Beautiful scenery suitable for relaxation and tourism activities. (3) Cultural resources and history uniqueness and attractive way of life. (4) Having outstanding natural resources, the abundance of plants and animals. (5) Potential of the area for the development of facilities in the future.	(1) Potential to access areas with roads, bus stops and bus services between tourist attractions. <u>Suggestion</u> Need to develop a public transportation service between tourist attractions.	-

6.2.2 Potential on sustainable resource management, key informants have evaluated the current situation based on below sub-potentials:

Table 3 Potential on sustainable resource management

Agreed	Agreed with Suggestion	Disagreed
(1) Zoning in harmony with environment and suitable for facilities. (2) Service for a tourist is managed with quality. (3) Tourism capacity is determined in order to prevent the impact to a tourism resource.	-	(1) Sustainable tourism development strategic plan availability. (2) Waste (both in land and water) is efficiency managed. (3) Life and asset security and disaster preparedness availabilities.

6.2.3 Potential of stakeholders participation, key informants have evaluated the current situation based on below sub-potentials:

Table 4 Potential of stakeholders participation

Agreed	Agreed with Suggestion	Disagreed
(1) Communities and stakeholders get benefit from environmental and cultural resources conservation. (2) Local people get economic benefit by tourism income distribution. (3) An opportunity to get a support of tourism development from government, private sectors and others.	(3) Community participates in determination and planning in tourism development with a strong manner. <u>Suggestion</u> The participation of local people is limited according the situation of tourist visiting. When tourism income is few, people may take tourism development as a low priority.	(1) Sustainable tourism development network availability.

6.2.4 Potential of awareness cultivation, key informants have evaluated the current situation based on below sub-potentials:

Table 5 Potential of awareness cultivation

Agreed	Agreed with Suggestion	Disagreed
(1) There are various methods of communication and suitable for the interests of tourists. (2) Activities can provide a satisfying and rewarding experience for tourists.	-	(1) There are communication activities that are appropriate to the potential of the area and contributing to raising awareness. (2) There are activities to raise awareness on the impact of resources in communities.

7. Conclusion and Discussion

Since a creative tourism has focused on participating in a community's lifestyle and culture (Richards and Raymond, 2000), tourists can visit Ratchaburi Chinatown, Damnoen Saduak Canal, Koi Kee Old Market, Lao Tak Luk Old Market, Damnoen Saduak Floating Market for participating in Thai-Chinese culture and enjoy an activities of wood craft and jar mounding as well as participate in a Chinese vegetarian festival and warship to Guan Yu God and Berk Prai Goddess. To learn and keep in touch with Thai-Song culture, tourists must visit 8 Ethnic Cultural Center and Om Yim market. To penetrate in Thai-Karen culture, Baan Pong Krating Bon cultural center and O Poi Market are the most picked attraction for tourists to visit. Khubua Community Market and Museum and Talaa Thai-Yuan Market are for Thai-Yuan culture absorbing. And tourists shall not miss to visit

Thai-Mon communities at Wat Muang Folk Museum, Sa Sook Jai Market as well as to enjoy Nang Yai Shadow Play at Daan Kanon Market.

According to the finding of potentialities to develop sustainable creative tourism in Ratchaburi province, it found that Ratchaburi province is one of provinces in Thailand that have a potential in tourism development, especially many of cultural tourism resources that can be developed for creative tourism. Local people should take advantage from those resources wisely in order to conform with United Nation’s policy which firstly given at the World Summit on Sustainable Development (WSSD). United Nation (2002) have stated in WSSD that people must protect and manage a natural resources based on economic and social development to increase the benefits acquisition from tourist attractions to the host community. People must maintain the integrity of culture and the environment as well as raising the level of protection in areas with fragile ecosystems and preserving natural heritage. Regarding potential on sustainable resource management, this shall be a heart of sustainability of all kind of tourism, Ratchaburi province urgently need a sustainable tourism development strategic plan which is a long term guidelines for the future of the next generation, as Kejornnan (2009) has mentioned that a strategic plan is for setting direction, harmonizing the related operations, providing a readiness and also for improving competitive efficiency. About potential of stakeholders participation, currently each creative tourism resources are managed by each communities separately without integration as a network and not all communities can get participation from all stakeholders including government, private sectors, people and tourists. Watanasap (2003) said that participation creates a positive impact on driving the organization or network due to it has a psychological effect that a participant will naturally be proud to be a part of management, giving an opinion and implementing a development, feel of belonging and desire to drive the best network. And finally, regarding potential of awareness cultivation, Ratchaburi province needs more implementation of activities for raising awareness of stakeholders regarding a sustainability matter. According to all things that have been clarified by this study, Ratchaburi province has potentialities of sustainable creative tourism which can be developed as one of the best creative tourism destination of Thailand.

8. Suggestion

An integrated sustainable creative tourism development strategic plan should be made for Ratchaburi province in order to comply with United Nation’s SDGs Goals and to preserve all resources for the next generation’s advantage.

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FACTORS AFFECTING CUSTOMER LOYALTY OF COLLEGE STUDENTS TO EAT AT "DIAN DOU DE" RESTAURANTS IN GUANGZHOU OF CHINA

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ABSTRACT

The purpose of this paper was to 1) investigate factors affecting customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China. 2) investigate Those independent factors were service quality, food quality, chefs' image, restaurant environment, restaurant images, atmospheric factor, and food image. The total sample of 213 respondents were collected using the survey questionnaire college students who dined at "Dian Dou De" restaurants. The data were analyzed using Multiple Regression Analysis. A total of 213 respondents were collected in this study. Based on the data analysis, there were 116 women (54.5%) and 97 men (45.5%). Most of the respondents were between 24 and 29, and there were 151 (70.9%). Interestingly, more than half of the respondents were married with 125 respondents (58.7%). Most respondents were bachelor's degrees with 158 respondents (74.2%). Most of them had salary per month around 2,000-5,000 yuan or around 10,000-25,000 Thai baht. Most of the respondents went to "Dian Dou De" restaurant 2-3 times a month or around 152 people (71.4%). Most of them chose to go to "Dian Dou De" restaurant in the morning and noon for 124 people (58.2%). Most of them of around 114 people (53.5%) chose hot dishes and cold dishes at the restaurants. The researchers found that food image, atmospheric factor, and restaurant images had the positive impact towards customer loyalty of the college students respectively with statistical significance. This research findings can be applied with practical recommendations for the restaurant businesses to strengthen the loyalty with their customers by empathizing on food image, atmospheric factor, restaurant images, and service quality of their restaurants.

Keywords: Customer Loyalty, College Students, Restaurants, Guangzhou

1. Introduction

Chinese people have linked Chinese food to a long cultural history. Food has considered as cultural element as it is practical element. Names of dishes have cultural nuances. Menus serve has considered to be communication tools between restaurants and their customers, representing the culinary philosophy of the chefs and proprietors involved (X. Chen, Ren, Liu, Okumus, & Bilgihan, 2019). In China, the number of eating out occasions or out-of-home (OH) meals have increased, even though homemade meals had been healthier than OH purchased meals (Lachat et al., 2012; Zang et al., 2018). Moreover, in recent years, long working hours and fast-paced lifestyles have emphasized to an increase in dining out in China (X. Chen et al., 2019). According to a recent study by the Social Survey Center of China Youth Daily, over 60% of people in China dine out or order takeout food more than twice a week (Wang, 2018). The advantage of the country for OH meals of the Chinese consumers has been the growing market values for the Chinese national food and beverage sales, which accounted for 10.8% of the total retail sales, or $585.94 billion, in 2017 reported by Ministry of Commerce of the People's Republic of China Department of Trade in Services and Commercial Service (X. Chen et al., 2020). Nevertheless, the disadvantage of the country for OH meals of the Chinese consumers has been poor diet quality of the Chinese consumers. There was an increase in energy, protein, carbohydrate, fat, and iron intake while eating OH meals for Chinese consumers (Zang et al., 2018), resulting in the reduced consumption of dietary fiber and vegetables, low nutrient density and poor diet quality. Therefore, eating out of home or OH meals for Chinese consumers has been one of the main obesity-promoting behaviors. Overweight and obesity are linked with an increased risk of several chronic diseases, including type 2 diabetes, hypertension, and cardiovascular disease (Hu et al., 2017). Then, although Chinese people have linked Chinese food to a long cultural history, eating habits of Chinese consumers especially for the new generations have changed from homemade meals to out-of-home (OH) meals. The out-of-home (OH) meals have both advantage and disadvantage for Chinese consumers.

Moreover, a study on the association between eating out and socio-demographic factors of university students in Chongqing of China reported that the frequency of eating out was relatively high. The frequency of eating out among females was higher than that among males during weekdays. The two main reasons for eating out were having an opportunity to meet friends and improving diet. Bistros and hot-pot restaurants were the favorite places for eating out. Most of the participants demonstrated a high demand for nutrition and food safety knowledge when eating out (Hu et al., 2017). So, this study confirmed that although young Chinese consumers preferred OH meals, they had high demand for nutrition and food safety knowledge when eating out.

Guangzhou is the China's third-biggest city. The city has the Pearl River Delta along the South China Sea. Then, the city is considered the China's most important trading ports with a colonial background and culturally diverse society. Moreover, the region's population has increased to around 130 million now. Today, this capital of Guangdong province, formerly known as Canton, has many cutting-edge architecture and tasty Cantonese food. Guangzhou, is also one of China's tastiest cities and it is about to become official with the launch of a Michelin Guide to the city later this year. The highlight is the Huangsha Seafood Market, one of the biggest fish markets in southern China (Adams, 2018). Dian Dou De (Ju FuLou) is a Chinese and Asian cuisines with breakfast, lunch, dinner and brunch. It has received the "ratings and reviews" of 4.5 out of 5 scale from 179 reviews from Tripadvisor. It has certificate of excellence 2016-2019 winner from the site. It is located at 470 Huifu East Road, Yuexiu District, Guangzhou, China (Tripadvisor, 2019). The researchers chose to conduct the research at "Dian Dou De" Restaurants in Guangzhou of China because the first researcher lived in Guangzhou and wanted to explore factors affecting customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China.

For literature review, a research on *the effects of teppanyaki restaurant stimuli on diners' emotions and loyalty* examined the total of 308 diners from Taiwan and found that *chef's image, service quality*, and *food quality* could affect the positive and negative emotions of diners. Also, other diners and restaurant *atmospherics* affected only the negative emotions of diners. Both positive and negative emotions could affect diner *loyalty* to teppanyaki restaurant (Peng, Chen, & Hung, 2017). *Service quality* focused on the service quality of service staff such as waiters and waitresses. Dian Dou De were the Chinese and Asian food restaurants with many branches. The restaurants were full-service restaurants where waiters and waitresses took orders and served dishes to consumers. Moreover, if *food quality* was an important factor for Taiwanese customers, it was likely to be an important factor for Chinese customers as well. Additionally, today young Chinese consumers looked for new and creative ways to get interactions when eating out. Then, if they could interact with the chefs of the restaurants, they were likely to be loyal to those restaurants. Then, the *chef's image* should affect *customer loyalty* of the Chinese customers. In addition, *atmospherics* could directly influence *customer loyalty* (Peng et al., 2017). Furthermore, a research on *food safety in restaurant from the consumer perspective* investigated 1,076 respondents in China and reported that the consumers preferred to assess a restaurant's food safety level based on "sensory perception of food" and "*restaurant environment*". The females employed more indicators to protect them from unsafe restaurants. Restaurants should emphasize on *restaurant images* and *restaurant environment* to develop effective marketing communication to keep the customers to be loyal to them (Bai, Wang, Yang, & Gong, 2019). Lastly, a research on *examining consumers' intentions to dine at luxury restaurants while traveling* incorporated a "*food image*" variable into a luxury value-attitude-behavior model by examining 361 Taiwanese tourists toward luxury restaurants and purchase intention. The research reported that a destination's *food image* moderated the relationship between attitude and purchase intention (Chen & Peng, 2018). Moreover, Peng at al. (2017)'s research could help other restaurants to increase *customer loyalty* by assessing their *chefs* and *service staff*'s roles and responsibilities (Peng et al., 2017).

2. Research Objective

Therefore, the researchers wanted to explore factors affecting customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China. The purpose of this research was:

(1) To investigate the factors affecting customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China.

(2) To investigate service quality, food quality, chefs' image, restaurant environment, restaurant images, atmospheric factor, and food image with the effect towards customer loyalty.

3. Research Framework

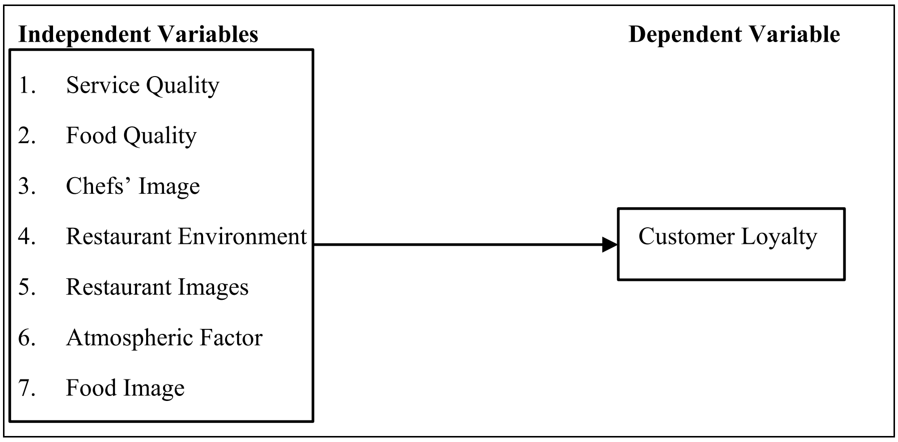

Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

This research applied the quantitative approach which included the survey method and the data collection was through questionnaires.

4.2 Population and Sample

The target population of this study were college students who liked and often went to "Dian Dou De" restaurant. The sample size of this study was estimated according to Cohen's (1977) principle to determine the sample size of 40 pilot questionnaires. The sample size was then calculated using G* power version 3.1.9.2, a software created by Erdfelder, Faul, Buchner, & Lang and approved by Wiratchai (Erdfelder, Faul, & Buchner, 1996; Wiratchai, 2012). The calculation was with the Power (1- β) of 0.94, Alpha (α) of 0.06, Number of Test Predictor of 7, Effect Size of 0.0985389 (Calculated by Partial R^2 of 0.0897). As the result of G* power calculation, the minimum number of the total sample size was 212 (Cohen, 1977). Therefore, the numbers of survey collection from participants were a total of 213 set of questionnaires.

4.3 Variable

H1:There is a positive relationship between service quality and customer loyalty.

H2:There is a positive relationship between food quality and customer loyalty.

H3:There is a positive relationship between chefs image and customer loyalty.

H4:There is a positive relationship between restaurant environment and customer loyalty.

H5:There is a positive relationship between restaurant images and customer loyalty.

H6:There is a positive relationship between atmospheric and customer loyalty.

H7:There is a positive relationship between food image and customer loyalty.

4.4 Research Instrument

The questionnaire was the instrument to examine related research theories from the past literatures and adapted to the conceptual model of this research. The finalized questionnaire had both English and Chinese versions with validation of the contents and agreement of wording adjustment from one expert in research field and two experts who were the managers of the Chinese restaurants' businesses. The seven independent variables which were service quality, food quality, chefs' image, restaurant environment, restaurant images, atmospheric factor, and food image and one dependent variable which was customer loyalty were measured on a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree."

4.5 Data Collection

To ensure the effectiveness and accuracy of the study, the first researcher went back to Guangzhou, China to collected data from college students in Guangzhou around June of 2019. The dining places were selected and distributed in different major areas of Guangzhou, so the respondents from these areas were enough to represent most college students in Guangzhou who chose "Dian Dou De" restaurants. In all cases of the survey questionnaire' respondents, the first researcher did not intervene when the respondents gave answers, but instead did explain the items in the questionnaire when they needed the assistance. A questionnaire took about 10 minutes to complete.

4.6 Data Analysis

After collecting the data, the researchers analyzed the data by using SPSS statistics version 25, the Cronbach's Alpha Coefficient of each factor was computed and had result value between 0.894-0.909. All of alpha coefficient was passed the suggested level of 0.65 (Nunnally, 1978) and had proven to be reliable. Then, the analysis using descriptive statistic consisted of frequencies, percentages, means, standard deviations was implemented. The hypothesis testing was tested using Multiple Regression Analysis to analyze the influence of the seven independent variables (service quality, food quality, chefs' image, restaurant environment, restaurant images, atmospheric factor, and food image) towards one dependent variable (customer loyalty).

5. Research Findings

Sample description (n=213)

Socio-demographic characteristic	Category	N.	Percent(%)
Gender	Male	97	45.5%
	Female	116	54.5%
Age	From 18 to 23 years	30	14.1%
	24-30 years old	151	70.9%
	Over 30 years old	32	15.0%
Status	Single	64	30.0%
	Married	125	58.7%
	Divorced/Widowed/Separated	24	11.3%
Level of education	Bachelor Degree	158	74.1%
	Master Degree	36	16.9%
	Doctorate Degree	10	4.7%
	Other， please specify	9	4.3%
Monthly income	Less than and equal to 1,000 yuan	6	2.8%
	1,000-2,000 yuan	3	1.4%
	2,001-3,000 yuan	53	24.9%
	3,001-4,000 yuan	55	25.8%
	4,001-5,000 yuan	54	25.3%
	More than 5,000 yuan	42	19.8%
Frequency of eating restaurants	Less than once a month	83	38.9%
	2-3 times a month	69	32.5%
	2-3 times a week	38	17.8%
	More than 3 times a week	23	10.8%
What time do you usually choose to go to restaurants	Morning	56	26.3%
	Noontime	68	31.9%
	Evening	51	24.0%
	Anytime	38	17.8%
Which day will you choose going to restaurants	Monday	29	13.6%
	Tuesday	17	7.9%
	Wednesday	22	10.3%
	Thursday	27	12.7%
	Friday	35	16.4%
	Saturday	50	23.5%
	Sunday	33	15.6%
How much would you pay at restaurants each visit	Low consumption (0-200 yuan)	79	37.1%
	Midrange consumption (201-500 yuan)	114	53.5%
	High-end consumption (more then 500 yuan)	20	9.4%
What kinds of food do you order at restaurants	Hot Dishes	59	27.7%
	Cold Dishes	79	37.1%
	Soups,Congees and Casseroles	35	16.4%
	Main Food and Snacks	40	18.8%
How many persons going to restaurants each time	Only 1 person	55	25.8%
	2-3 persons	95	44.6%
	4-6 persons	33	15.5%
	More than 6 persons	30	14.1%

In addition, based on hypothesis that service quality, food quality, chefs' image, restaurant environment, restaurant images, atmospheric factor, and food image had the effect towards customer loyalty, the analysis results could be concluded that there was only *food image* (β=0.263), *atmospheric factor* (β=0.257), and *restaurant images* (β=0.225) had respectively positive effect towards *customer loyalty* at statistically significant level of .05 as stated in Table 1. Moreover, the three independent variables were explained the positive impact on customer loyalty at 87.2%, while the rest at 12.8% could not be explained in this research's conceptual model. Also, the standard error was ±0.104 by the following equation;

Y (customer loyalty) = 0.182 + 0.263 (food image) + 0.257 (atmospheric factor) + 0.225 (restaurant images)

Also, the result of Variance Inflation Factor (VIF) values of each independent variable were not exceeded by 10, which meant that there were no Multicollinearity (O'Brien, 2007).

Table 1 Multiple Regression Analysis

Dependent Variable :Customer Loyalty, R = 0.934, R^2 = 0.872**, Constant(a) = 0.182**						
Independent Variables	β	Std Error	T	Sig	Tole-rance	VIF
(Constant)	0.182	.104	1.746	0.82		
Service Quality (SQ)	0.166	0.61	2.743	0.07	.161	6.228
Food Quality (FQ)	-0.032	0.69	-.464	.643	.121	8.227
Chefs Image (CI)	0.042	0.63	0.670	.504	.139	7.204
Restaurant Environment (RE)	0.037	0.63	0.590	.556	.158	6.345
Restaurant Images (RI)	0.225*	0.70	3.205	0.02	.121	8.260
Atmospheric Factor (A)	0.257*	0.55	4.677	0.00	.181	5.536
Food Image (FI)	0.263*	0.62	4.270	0.00	.158	6.343

*significant level at the .51 level

6. Discussion

Based on the hypothesis that service quality, food quality, chefs' image, restaurant environment, restaurant images, atmospheric factor, and food image had the effect towards customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China. The researchers found that only *food image, atmospheric factor*, and *restaurant images* had respectively positive effect towards *customer loyalty* at 87.2%. The results supported the previous research that *food image* can be incorporated into luxury value-attitude-behavior model among Taiwanese tourists toward luxury restaurants and purchase intention (Chen & Peng, 2018). Similarly, *food image* can be integrated into the conceptual model of customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China. Moreover, the results of this research confirmed that *restaurant atmospherics* affected only the negative emotions of diners. Both positive and negative emotions could affect diner *loyalty* to teppanyaki restaurant (Peng, Chen, & Hung, 2017). Additionally, the results of this research supported previous research that restaurants should emphasize on restaurant images to develop effective marketing communication to keep the customers to be loyal to them (Bai, Wang, Yang, & Gong, 2019). However, the results of this research were not supported that service quality, food quality, chefs' image, and restaurant environment, had the effect towards customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China. This might be that the Chinese customers at "Dian Dou De" restaurants in Guangzhou of China had not been satisfied with service quality, food quality, chefs' image, and restaurant environment of the restaurants. So, they had not felt loyal to the restaurants.

7. Suggestion

For managerial implication, the results of this research may help "Dian Dou De" restaurants in Guangzhou of China or any restaurant's owner or marketer to make investment decisions more on food image, atmospheric factor, and restaurant images since this factor had positive impact on customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China. The business owners, marketers, or retailers should emphasize food image, atmospheric factor, and restaurant images of "Dian Dou De" restaurants in Guangzhou of China to increase the sales in the long term since the customers paid more attention to these factors in order to be loyal to the restaurants. For more inclusive and practical recommendation, the business owners, marketers, or retailers may try to improve service quality, food quality, chefs' image, and restaurant environment since these factors had not found to be important factor positively affecting customer loyalty of the restaurants. Practitioners should get a better picture of how to promote healthy products in Guangzhou of China when eating out as well to help to improve health of the customers, better way of life in Guangzhou of China, and be in the restaurant businesses in long run. Future research could examine how brands, genders, ethnic groups may have negative or positive effect toward the customer loyalty of college students to eat at "Dian Dou De" restaurants in Guangzhou of China. A longitudinal study can be performed to see the impact of the shift in food image, atmospheric factor, and restaurant images on customer loyalty of the consumers over time.

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THE INFLUENCE OF CRISIS MANAGEMENT ON CORPORATE REPUTATION AND CONSUMER PURCHASE INTENTION IN E-COMMERCE AMONG CHINESE CUSTOMERS

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ABSTRACT

The main purpose of this survey research was to explore the impact of crisis management strategies on corporate reputation, and online purchasing users in the field of E-commerce platform. Taking Alibaba Group, a Chinese e-commerce giant, as a case study, this paper focused to research the influence between corporate crisis management strategies as suggested by Image Restoration Theory, corporate reputation, and purchasing intention among Chinese consumers after exposing to Alibaba's crisis management. Two hundred of Chinese respondents were selected using purposive sampling. The samples were Chinese customers who had experiences using online purchase with shopping website at least 6 months period. Data were analyzed using percentage, mean, standard deviation and Multiple Regression analysis. The results were as follows:

1. Respondents' attitude toward Alibaba's overall crisis management strategies was neutral (Mean= 2.57, SD=.59). Their attitude toward the Alibaba's correction action was perceived to be "agreeable," and mortification was perceived to be "neutral"; however, their denial response and evading responsibility was perceived to be "Disagree" among Chinese customers.

2. Respondents had an overall positive reputation toward Alibaba products. They agreed with all key dimensions of corporate reputation, including workplace environment, vision and leadership, market performance, financial performance, products and services, and social and environmental responsibility, respectively. The descriptive findings revealed that the majority of the sample had high intention to purchase intention Alibaba products (Mean=3.72, SD=.01).

3. The findings suggested that five elements can significantly predict their corporate reputation at the rate of 54.7%. And. the respondents perceived corrective action and mortification elements as the significant positive predictors while other elements were not significant predictors. However, denial, evasion responsibility, reduce offensiveness were negative predictors of Alibaba's corporate reputation.

4. Chinese customers' perceived of Alibaba's corporate reputation in respect to product and services, workplace environment, environmental responsibility, financial performance, market performance, and vision and leadership did not significantly influenced consumer purchase intentions at 0.5% .

5. Chinese customers' attitude toward Alibaba's crisis management strategies, including denial response, evading responsibilities, reducing offensiveness, correction, and mortification did not significantly influence their customers' intention to purchase Alibaba products at the rate of 0% .

KEYWORDS: Crisis management strategy, Corporate reputation, Purchase intention,E-commerce Alibaba

1. Introduction

In the new era of cloud computing, great changes have taken place in information technology, communication channels and communication methods. In today's complex media ecological environment, leading companies encountered with crisis which challenged their corporate reputation, especially E-reputation. Improper solutions can not only cause the loss of material property, but also damage intangible reputation assets (Coombs, 1998; Coombs & Holladay; 2002). At present, various fields are studying how to establish and manage corporate reputation and how to transform it into sustainable competitive advantages (Fombrun & Shanley, 1990; Roberts & Dowling, 2002). Good corporate reputation will increase customers' confidence in products and services, advertising content and purchase decisions (Fombrun, 1998; Lafferty & Goldsmith, 1999). Customers value connections and transactions with high-profile companies (Roberts & Dowling, 2002). When customers think that the reputation of the enterprise is excellent, the loyalty will become stronger and stronger (Nguyen & Lebrance, 2001).Based on past theories, such as like Coombs' Situational Crisis Communication Theory (SCCT) (Coombs & Holladay, 1996, 2002; Coombs, 2010) and Image Restoration Theory (Benoit, 1995) etc., these theories emphasized the significance of crisis responses of the company in shaping the customers' corporate reputation and their trust toward the company after crisis. However, in past few years, very limited studies examined how crisis management strategies and crisis responses influence e-reputation, which is a growing significantly in China. Based on this knowledge gap, this research aimed to verify the impact of crisis strategy on corporate reputation by combining theoretical research with case study of Alibaba Group, a Chinese e-commerce giant in China.

2. Research Objectives

(1) To examine the influence of Chinese customers' attitude toward the crisis management strategies on the perceived corporate reputation toward Alibaba products.

(2) To examine the influence of customers' corporate reputation of Alibaba product and their intention to purchase Alibaba products.

(3) To examine the influence of Chinese customers' attitude toward crisis management strategies on their purchase intention of Alibaba products.

3. Research Framework

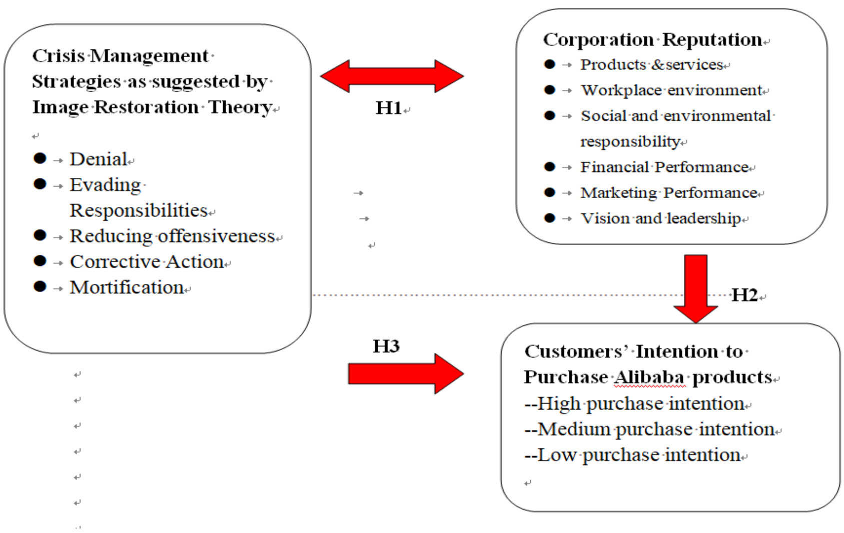

Figure1 Research Framework

4. Research Methodology

4.1 Research Design

This is an online and offline survey research that examined the influence of Chinese customers' attitude toward the crisis management strategies, corporate reputation, and their intention to purchase Alibaba products conducted from September –October, 2019.

4.2 Population and Sample:

The population of this research is the Chinese consumers who have experienced using e-commerce to purchase Alibab a Group or other online shopping platforms in the past one year. In this research, 200 samples aged between 18-25 years participated in the survey.

4.3 Independent and dependent variables: The independent variables include(1) Chinese customers' attitude toward Alibaba's crisis management strategies, including denial, evading responsibilities, reducing offensiveness, correction, and mortification and(2)Chinese customers' perceived reputation in respect to product and services, workplace environment, environmental responsibility, financial performance, market performance, and vision and leadership. The dependent variable was Chinese customers' intention to purchase Alibaba products.

4.4 Research Instrument: There were 4 sections in this survey. Part I had 7 nominal-and-ordinal questions, asking gender, age, maritalstatus, occupation, personal income per month and their favorite online shopping website. PartII had14 likert-scale questions measured by 5 strategies, probing customer attitude toward Alibaba crisis management strategies as suggested by Image Restoration Theory. Part III had 18 likert-scale questions, probing 6 dimensions of corporate reputation, including product and services, workplace environment, environmental responsibility, financial performance, market performance, and vision and leadership. Part IV had 3 likert-scale- questions, asking Chinese customers intension to purchasing Alibaba products in the future.

4.5 Data Collection: The data collection was conducted from August –December, 2018, by using convenience sampling.

4.6 Data Analysis: Data were analyzed using percentage, mean, standard deviation and Multiple Regression analysis.

5. Research Findings

5.1 Summary of Descriptive Results

Based on the descriptive findings, majority of the samples were female (57%, n = 114), and male (43%, n = 86), aged 25-29 years old (40%, n = 80), married (40%, n = 80), private company employees (22.5%, n = 45), and majority of the samples earned more than 30,001 yuan per month (28%, n = 56), purchased more than six times per month (34.5%, n = 69), and their favorite shopping online website were Taobao (69%, n = 138). The descriptive findings found that the respondents' attitude toward Alibaba's crisis management strategies neutral (Mean= 2.57, SD = .59). Majority of the respondents had positive reputation toward Alibaba (Mean = 3.91, SD = .67.) And,majority of the respondents had high intention to purchase Alibaba products (Mean = 3.72, SD =.01).

5.2 Summary of Hypothesis Testing

Hypothesis 1: Chinese customers' attitude toward Alibaba's crisis management strategies, including denial, evading responsibilities, reducing offensiveness, corrective action, and mortification, significantly influence their perceived corporate reputation toward Alibaba.

As shown in Table 1, Multiple Regression analysis was used to set the significance level to (α) 0.05. The results revealed that respondents' attitude toward crisis responses significantly influence their corporate reputation was the rate of 54.7% (R^2 = 0.547*, p< 0.05).Thus, hypothesis 1 is fully supported.

Table 1: Multiple regression analysis on the influence of attitude toward Alibaba's crisis management strategies on their corporate reputation as perceived by Chinese customers.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.740[a]	0.547	0.535	0.61667	0.547	46.877	5	194	0.000	1.347

a. Predictors: (Constant)Denial, Evading Responsibility, Reducing Offensiveness, Corrective Action, Modification

b. Dependent Variable: Corporate Reputation

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.776	0.217		17.368	0.000	3.347	4.205
	Denial Response	-0.292	0.071	-0.299	-4.105	0.060	-0.432	-0.152
	Evasion Responsibility	-0.143	0.094	-0.120	-1.523	0.129	-0.329	0.042
	Reducing Offensiveness	-0.195	0.080	-0.158	-2.445	0.015	-0.352	-0.038
	Corrective Action	0.215	0.054	0.271	4.007	0.000	0.109	0.320
	Mortification	0.265	0.052	0.329	5.085	0.000	0.163	0.368

a. Dependent Variable: Corporate Reputation

H2: Chinese customers' perceived reputation in respect to product and services, workplace environment, environmental responsibility, financial performance, market performance, and vision and leadership, significantly influence to consumer purchase intentions.

As shown in Table 2, Multiple Regression analysis revealed that Chinese customers' perceived of Alibaba's corporate reputation in respect of six elements were not significantly influenced consumer purchase intentions at 0. 5% (R^2= .005, p>.05).Thus Hypothesis 2 was not supported.

Table 2: Multiple Regression analysis on the influence of perceived reputation on consumer purchase intention

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.067[a]	0.005	-0.001	0.72344	1.878

a. Predictors: (Constant), Reputation Mean

b. Dependent Variable: Purchasing Intention

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.929	0.229		17.140	0.000
	Product Service Mean	0.002	0.101	0.003	0.024	0.981
	Workplace Environment Mean	0.037	0.046	0.118	0.811	0.419
	Social Environment Responsibility Mean	-0.018	0.101	-0.024	-0.178	0.859
	Financial Performance Mean	-0.129	0.104	-0.179	-1.236	0.218
	Marketing Performance Mean	-0.155	0.110	-0.210	-1.404	0.162
	Vision and Leadership Mean	0.154	0.093	0.223	1.660	0.099

a. Dependent Variable: Purchasing Intention Mean

H3: Chinese customers' attitude toward Alibaba's crisis management strategies, including denial response, evading responsibilities, reducing offensiveness, correction, and mortification, significantly influence their customers' intention to purchase Alibaba products.

As shown in Table 3, Multiple Regression analysis about Chinese customers' attitude toward Alibaba's crisis management strategies, did not significantly influence their customers' intention to purchase Alibaba products at the rate of 0% ($R2=.000*$,$p>.05$). Thus, Hypothesis 3 was not supported.

Table 3: Multiple Linear Regression on the influence of Alibaba's crisis management strategies on Chinese customers' purchase intention

Model	R	R Square	Adjusted R Square	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
1	.019ᵃ	0.000	-0.005	0.000	0.074	1	198	0.786	1.882

6. Discussion of the Study

The main purpose of this study was to explore Alibaba Group's crisis management strategy, the relationship between image restoration, corporate reputation perception, and consumer purchase intention. Hypothesis results revealed that respondents' attitude toward crisis management strategies significantly influence their corporate reputation was the rate of 54.7%. The findings supported the Social Exchange Theory, which posited that "people considered their relationship from an economic perspective" (West & Turner, 2010). Chinese customers perceived that Alibaba have adopted the appropriate crisis management strategies and Alibaba have offered the quality services and products according to their expectation. The results of hypothesis 1 also supported the assumption of Image Restoration Theory, which posited that an organization determines what threatens its reputation or image, and also determined which public must be dealt with and persuaded to maintain and restored a positive image (Fearn-Banks, 2016). Research showed that Alibaba has identified the main threat factors in each crisis, repair its reputation, and make effective crisis responses, so as to stabilize Alibaba's normal e-commerce business and maintain consumer confidence.

The results of hypothesis 2 revealed that Chinese consumers are not affected by these prediction factors, which means that the positive image of enterprises is deeply rooted in people's hearts. This is also consistent with the research results of Fombrun (1998); Lafferty & Goldsmith(1999): "A good reputation will enhance customers' confidence in products and services, advertising content, and purchase decisions. " And the result of hypothesis 3 revealed that the attitude of Chinese consumers towards Alibaba's crisis management strategy has no significant effect on their purchase intention. Alibaba has a very good reputation in the hearts of Chinese consumers. This view is consistent with previous scholars' research results: a good corporate reputation can significantly improve customer loyalty to the enterprise (Nguycn and Leblanee 2001), while also verifying Jarvenpaa & Traceability (1999) theory that the reputation of e-commerce enterprises has a positive impact on the trust of online enterprises.

7. Suggestions for Further Application and Future Research

7.1 Suggestions for Further Application

(1) This case is applicable to the same industry. Taking Alibaba e-commerce corporation as case study, many enterprises can refer to Alibaba's crisis responses, time selection, and multi-channel multimedia forms in the future crisis management strategies.

(2) Corporate reputation and e-reputation should be well maintained. In the era of new media, multi-channel brand loyalty and trust should be established.

7. 2 Suggestions for Further Research

(1) According to the characteristics of Internet enterprises, the future research can further study the evaluation indexes and influencing factors of e-commerce enterprise reputation. Combined with the characteristics of online consumers, this paper studies the driving factors of their purchase intention.(2) In the future, we can study other types of online enterprises(3). In the form of sampling survey, we can classify different types of customers and shopping experience so as to provide theoretical basis for more online enterprises' reputation management.

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THE IMAGE OF MAHACHAI INSTITUTE OF AUTOMOTIVE TECHNOLOGY

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ABSTRACT

The purpose of this Research was to study the image of Mahachai Institute of Automotive Technology of 11 aspects: administration and management, instructors, students, teaching materials and texts, student affairs, building and classrooms, academic service, the University's environment, registration system, the facilities and security system and car park. The sample was 214 respondents comprising the University's students. 214 of questionnaire were distributed and collected by the researchers, and 100% of them were perfectly completed. Then the collected data was analyzed by using "percentage" "mean" and "standard deviation" after that data interpretation was done.

The results were founds as follows :

1. The overall student's satisfaction toward the 11 aspects of image of Mahachai Institute of Automotive Technology was found at high level. When looking at individual aspect : administration and management, instructors, students, teaching materials and texts, student affairs, building and classrooms, academic service, the University's atmosphere , registration system, the aspects of facilities and security system and car park were also found at high level.

2. The overall student's satisfaction towards the each item of the 11 aspects of image of Mahachai Institute of Automotive Technology was also found at high level.

Keywords: The image of a higher educational institution, student's satisfaction,

1. Introduction

According to the National Education Act (No. 4) BE 2562 article 6 states that "education must be to develop Thai peoples into a complete health, mind, intellect, knowledge, and virtue. Ethical and cultural life can co-exist with others happily", article 7 states that" in the learning process must be geared awareness about politics. The democratic government with the King as Head of State. To protect and promote rights previous Liberty Respect for the law, equality and human dignity. Pride in the Thailand and to protect the interests of the nation. Promotion of religion, art and culture, sport, local knowledge, wisdom and universal knowledge of Thailand. As well as, conservation of natural resources and the environment the ability to earn a living. Self-reliance initiatives. Learning and self-learning and continuously under article 16 stated that "the education system, there are two levels: basic education and higher education," Mahachai Institute of Automotive Technology is a private institution of higher established on 31 July 2555, consisting of 1 faculty and 4 subjects of technology in education is four disciplines graduate courses Automotive technology, Automotive Business Management, Business Management, and Industrial Management students by test matches. The current image of the in institution is absolutely necessary to execute its core missions of higher education institutions 4 areas: teaching, research, service to the society, and culture that affects the management of the organization. Producing graduates into the labor market which can create a good image to the credibility of faith to study the parents and students of the institution. Mahachai Institute of Automotive Technology has recognized the importance and the need to create a positive image of the institution to achieve the confidence and trust of the st`udents to study as well as the school's graduates. We have studied the image of Mahachai Institute of Automotive Technology. To build a good image and be a place for public relations for the Automotive Technology Institute else to go

2. Research Objective

To study the image of Mahachai Automotive Technology Institute according to student opinion in various fields including : administration and management , instructors, students, teaching materials and texts, student affairs, building and classrooms, academic service, the University's atmosphere, registration system, the aspects of facilities and security system and car park.

3. Research Framework

The image of the Mahachai Institute of Automotive Technology.

- Administration and management
- Instructors
- students
- teaching materials and texts
- Student affairs
- Building and classrooms
- Academic service
- The University's environment
- Registration system
- The facilities and security system.
- Car park

↓

The image of Mahachai Institute of Automotive Technology

Figure 1 Research Framework

4. Research Methodology

Research on the image of the Mahachai Institute of Automotive Technology for the researchers conducted in the following order:

4.1 Research Design

Is an exploration research (Survey research)

4.2 Population and Sample

The population in this research is the Mahachai Institute of Automotive Technology. All ages and disciplines of the 480 samples used in this research is the Mahachai Institute of Automotive Technology acquired by Multistage Random Sampling process the sample size criteria, Krejcie & Morgan have a sample of 214 students.

4.3 Variable

The variables used in this study include:

Independent variable

The image of the Mahachai Institute of Automotive Technology in 11 aspects: administration and management, instructors, students, teaching materials and texts, student affairs, building and classrooms, academic service, the University's atmosphere, registration system, the aspects of facilities and security system and car park.

Dependent Variable

The image of the Mahachai Institute of Automotive Technology.

4.4 Research Instrument

The tool of this research is a questionnaire developed for the students, divided into three parts:

The first part is a question about the status of the respondents is check your answer (Check list), second part is questions about the image of the Mahachai Institute of Automotive Technology in the opinion of students in various fields, including 11 on a Rating scale with 5 levels and the final part is an open-ended question about their opinions and suggestions.

4.5 Data Collection

The researchers collected the information by themselves and receive it on the day of Post training students. The questionnaires received from student are 214.

4.6 Data Analysis

The researchers analyze the data from the questionnaire by using a SPSS program to calculate mean and standard deviation as well as translating the meaning of the data. The open-ended answers the researcher used to analyze-synthesize content and summarize common issues.

5. Research Findings

The research of "the image of Mahachai Institute of Automotive Technology" according to the student's perspective can summarize the results of the findings

5.1 General Status of Students

5.1.1 Students from Mahachai Institute of Automotive Technology information provided of both male and female were equally divided under the following majors:

Business Management	52.80 percent
Industrial Management	32.71 percent
Automotive Technology	11.22 percent
Automotive Business Management	3.27 percent

5.2 The results for the image of the Mahachai Institute of Automotive Technology.

5.2.1 The overall student's satisfaction toward the 11 aspects of image of Mahachai Institute of Automotive Technology was found at high level. When looking at individual aspect: administration and management, instructors, students, teaching materials and texts, student affairs, building and classrooms, academic service, the University's atmosphere , registration system, the aspects of facilities and security system and car park were also found at high level.

5.2.2 The overall student's satisfaction towards the each item of the 11 aspects of image of Mahachai Institute of Automotive Technology was also found at high level.

Table 1 Table comments about the image of the Institute of Automotive Technology else in terms of the number 11 as perceived by the students

No.	Item	$\overline{X}$	S.D	Interpretation
1	Administration and management	4.15	0.70	high
2	Instructors	4.26	1.10	high
3	Students	4.14	0.73	high
4	Teaching materials and texts.	3.91	0.84	high
5	Student affairs	3.93	0.83	high
6	Building and classrooms	3.95	0.83	high
7	Academic service	3.92	0.87	high
8	The University's environment	3.99	0.80	high
9	Registration system	4.05	0.82	high
10	The facilities and security system	3.60	1.05	high
11	Car park	3.80	0.92	high
total		3.97	0.86	high

The table shows that students from the Mahachai Institule of Automotive Technology opinions about the image of the institution Mahachai technology in various fields, including 11 aspects are in the high level. Considering each side found that all the opinions on the level also high level.

6. Discussion

The result of the study for the image of Mahachai Institute of Automotive Technology, according to the opinion of students, can be discussed as follows:

The opinions of Mahachai Institute of Automotive Technology students in 11 aspects such as system for management, Student instructors, teaching equipment and textbooks, registration systems for facilities and security system and car park places have an average score at a high level, and considering the revenue side found that all the 11 aspects in the comments as also high level. When considering each item of each aspect, found that every item had a high level of opinions. This is probably because Mahachai Institule of Automotive Technology is a higher educational institution established in the 2555, which is only 7 years old. The materials and study equipment are still relatively new and ready for use and has been continuously certified by the Higher Education Commission. In addition, the administrator of the Mahachai Institule of Automotive Technology has committed to supply the equipment needed as a teaching aid for students continues to be consistent with the opinions aspect or any of its students and without any of the students' opinions on the lower level, which indicates that the Mahachai Institule of Automotive Technology are them satisfied.

7. Suggestion

Feedback from the research "The image of the Institute of Mahachai Institute of Automotive Technology" according to the opinions of students Institute of Technology is divided into two issues:

1. Suggestions for bringing research results to the user.

1.1 The Mahachai Institule of Automotive Technology be aware of the image of the institution through the development and improvement of various elements related institutions include: system management, instructors, equipment and textbooks, school building and classroom, atmosphere resources institute, amenities including Internet and Wi-Fi signal as well as system security and parking places, to a very great extent continues.

1.2 The Mahachai Institule of Automotive Technology be aware of the recruitment retention and promotion, the development continues.

1.3 The Mahachai Institule of Automotive Technology should develop a system of registration of students. It can be linked to different systems and can be used effectively.

2. Suggestions for the next research

2.1 Research on the Concept of Image Development in Mahachai Institute of Automotive Technology

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WAYS FOR PLASTIC POLLUTION FREE

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ABSTRACT

Since its commercial development in the 1950s, plastic has been a real success. Its global production is growing exponentially. Its success comes from its remarkable qualities: ease of shaping, low cost, mechanical resistance, etc. Being the ideal material for packaging, plastic is basically found everywhere. With its expanding applications, plastic has delivered many benefits to society. The use of plastic in modern society has increased, and so, however, have its environmental impacts associated with its production and disposal.

Plastic pollution in the oceans is a major problem that has finally got the attention it deserves. It is estimated that 80% of marine litter comes from land. This pollution comes mainly from household waste, which is poorly recycled, dumped in landfills or abandoned in nature. The waste is carried by the wind and pushed by the rain into sewers, streams, rivers, and finally into the oceans. Natural disasters such as floods must be considered as potential causes of plastic pollution as well. UNEP report in 2014 highlighted the environmental costs of plastic use in consumer products, including emissions of greenhouse gas, air, land and water pollutants, depletion of water and the production of marine debris in the global oceans. (UNEP, 2014) That directly harms humans too. Poor waste management is linked to diseases or conditions such as diarrhea, cholera, respiratory illness, and eye and skin infections.

This article seeks to find ways to solve plastic pollution and consider how more sustainable practices could help reduce the environmental costs of plastic use in the consumer products sector in order to achieve plastic pollution free in the near future.

Keywords: plastic waste management, plastic pollution, plastic free scenarios

1. Introduction

Plastic consumption has dramatically increased since the early 1950s. According to the journal Science Advances in 2017, the total volume of plastic produced worldwide from 1950 to 2015 exceeded 8.3 billion tons. With the annual volume of plastic production at about 400 million tons, the 10-billion-ton limit might easily be broken every year, (Lloyd , 2019) which could end up as pollutants, entering our natural environment and oceans. Not all of our plastic waste ends up in the ocean, but most of it ends up in landfills. It's estimated that the share of global plastic waste entering the ocean is around 3%. (Anderson & et al., 2018) Most of the plastic materials we produce are less dense than water and should float at the ocean surface. (WWF, 2019)

Plastic pollution has become one of the most pressing environmental issues due to the rapid increasing production of disposable plastic products which overwhelms the world's ability to deal with it. Plastic pollution is mostly visible in developing Asian and African nations, where garbage collection systems are often inefficient or nonexistent. However, the developed world, especially in countries with low recycling rates, also has problems of improper plastics waste collection. Plastic trash has become so ubiquitous that it has prompted efforts to write a global treaty negotiated by the United Nations.

Global growth is set to continue. Plastic consumption increases as economy develops and we begin using them in a range of products and consumer goods. Our analysis suggests that by 2050, global plastic production could double to over 800 million tonnes per year. If made with today's fossil feedstock, global plastics production would then require 900 Mt of oil per year which is more than the European Union uses today and more than 23% of total global oil use in a 2°C scenario. (Peter & et al., 2018) By the end of the century, plastic consumption would increase up to 1345 million tonnes per year which is more than four times today's levels. By any measure, plastic, therefore, is a major determinant of future fossil fuel use and hence of carbon dioxide (CO_2) emissions. (MESAB, 2018)

2. Objective

(1) To study plastic pollution in environmental effects

(2) To guide how to stay free from plastic pollution

3. Plastic pollution effects

Plastic pollution is caused by the accumulation of plastic waste in the environment. It can be categorized in primary plastics, such as cigarette butts and bottle caps, or secondary plastics resulting from the degradation of the primary ones. It can also be defined by its size, from microplastics - small particles (<5 mm) of plastic dispersed in the environment to macroplastics. Plastic pollution can come in different forms including:

- The accumulation of waste
- The accumulation of marine litter, fragments or microparticles of plastics and non-biodegradable fishing nets, which continue to trap wildlife and waste
- Waste causing the death of animals by ingestion of plastic objects

- The arrival of microplastics and microbeads of plastics from cosmetic and body care products

As the world's population continues to grow, so does the amount of garbage that people produce. On-the-go lifestyles require easily disposable products, such as soda cans or bottles of water, but the accumulation of these products has led to increasing amounts of plastic pollution around the world. As plastic is composed of major toxic pollutants, it has the potential to cause significant harm to the environment in the form of air, water, and land pollution.

Plastic pollution is a defining environmental challenge for our time and has begun to negatively impact the natural environment, create problems for plants, wildlife and even the human population. Plastic is an incredibly useful material, but it is also made from toxic compounds known to cause illness, and because it is meant for durability, it is not biodegradable. In the next 10-15 years, global plastic production is projected to nearly double. Avoiding the worst of these outcomes demands a complete rethinking of the way we produce, use and manage plastic.

The convenience that plastic offers and lead to a throw-away culture reveals the material's dark side. Nearly 50% of the plastic waste generated globally in 2015 was plastic packaging. (UNEP, 2018) Many of these products, such as plastic bags and food wrappers, have a lifespan of mere minutes to hours, yet they may persist in the environment for hundreds of years.

Six basic types of plastic dominate today's markets: Polyethylene (PE, high and low density), polypropylene (PP), polyvinyl chloride (PVC), polystyrene (PS, and expanded EPS), polyurethane (PUR), and polyethylene terephthalate (PET) (GESAMP, 2015) The durability of plastics is simultaneously one of their major advantages and one of their most devastating properties once discarded. As plastic degrades very slowly, the increasing production of these polymers will lead to ever larger amounts of plastic waste in the environment. If untreated, this waste will continue to leak to and accumulate in the world's oceans, where it may take hundreds of years to dissolve. Production of plastics has increased twentyfold in the past half-century and is expected to double again in the next 20 years, according to the Ellen MacArthur Foundation. With the recent growth in the production volume of plastic and in light of projected future increases, it is also obvious that the problem will not solve itself. (WEF & Ellen MacArthur Foundation, 2016)

Packaging is the world's largest plastics sector, making up about one quarter of overall production. It appears as convenient food-wrappings, milk cartons, shopping bags, and water bottles and is thus largely incorporated into our daily routines. However, it is estimated that after a short first-use cycle, 95% of plastic packaging material value, or USD 80-120 billion annually, is lost to the economy. Treating the plastics problem could thus have immense economic benefits. (WEF & Ellen MacArthur Foundation, 2016)

Plastic pollution effects on the environment

Plastic creates toxic pollution at every stage of its existence: manufacture, use, and disposal. Plastic is a material that the earth cannot digest. Every bit of plastic that has ever been created still exists, including the small amount that has been incinerated and has become toxic particulate matter. When dumped in landfills, plastic materials interact with water and form hazardous chemicals. If these compounds seep down towards groundwater aquifers, they degrade the water quality, leading to groundwater pollution.

Plastic pollution effects on human and animals

Blockage due to plastic accumulation may form shelters for the breeding of mosquitoes and other harmful vectors insects, which might cause numerous diseases in humans. Bio-accumulation of plastic inside animals is one of the most recent effects of plastic pollution. Over many years, the accumulated plastic releases harmful chemicals, and it breaks down into small pieces causing extreme discomfort to the animals. After their death, the animals' bodies might decompose, but the plastic fragments may remain as a threat to other animals.

Burning plastic leads to contamination of the atmosphere due to the release of poisonous chemicals which leads to air pollution. It requires laborers, who are at the risk of developing skin and respiratory problems due to inhalation of recycling toxic chemicals. Wind carries and deposits plastic from one place to another, increasing the land litter. It also gets stuck on fences, trees, towers or buildings. Any animal might get tangled with it and suffocate to death.

All over the world, researchers are staring through microscopes at tiny pieces of plastic (fibers, fragments, or microbeads) that have made their way into marine and freshwater species, both wild caught and farmed. Scientists have found microplastics in 114 aquatic species, and more than half of those end up on our dinner plates. Now they are trying to determine what that means for human health. (Elizabeth, 2018)

So far, science lacks evidence showing that microplastics are affecting fish at the population level. Our food supply doesn't seem to be under threat, but enough research has been done now to show that the fish and shellfish we enjoy are suffering from the omnipresence of this plastic. Every year 5 to 14 million tons of plastic flow into our oceans from coastal areas. (Elizabeth, 2018)

The full health effects of breathing microplastics are not yet entirely understood. But research proves that the threat to human health is high. Once inhaled, these tiny particles go into the deep lungs where they may induce lesions in the respiratory systems. The smallest particles can also pass into the bloodstream and cause cardiovascular and cerebrovascular diseases, induce cancer, and affect the human immune and nervous system. Microplastic found in lung tissue indicates that the body is not able to rid itself of all particles and that the microplastics are bio-persistent. (Kavin, 2018)

Millions of animals are killed by plastics every year, from birds to fish to other marine organisms. Nearly 700 species, including endangered ones, are known to have been affected by plastics. Nearly every species of seabird eats plastics. Most of the deaths to animals are caused by entanglement or starvation. Seals, whales, turtles, and other animals are strangled by abandoned fishing gear or discarded six-pack rings. Microplastics have been found in more than 100 aquatic species, including fish, shrimp, and mussels destined for our dinner plates. In many cases, these tiny bits pass through the digestive system and are expelled without consequence. But plastics have also been found to have blocked digestive tracts or pierced organs, causing death. Stomachs packed with plastics reduce the urge to eat, causing starvation. Plastics have been consumed by land-based animals, including elephants, hyenas, zebras, tigers, camels, cattle, and other large mammals, in some cases causing death. Tests have also confirmed liver and cell damage and disruptions to reproductive systems, prompting some species, such as oysters, to produce fewer eggs. New research shows that larval fish are eating nanofibers in the first days of life, raising new questions about the effects of plastics on fish populations. Experiments show that microplastics damage aquatic creatures, as well as turtles and birds. They block digestive tracts, diminish the urge to eat, and alter feeding behavior, all of which reduce growth and reproductive output. Their stomachs stuffed with plastic and some species starve and die. (Greenpeace, 2006)

Plastic pollution effects on the marine life

From the whale, sea lions, and birds to the microscopic organisms called zooplankton, plastics have been greatly affecting marine life on shore and offshore. In a 2006 report, Plastic Debris in the World's Oceans, Greenpeace stated that at least 267 different animal species are known to have suffered from entanglement and ingestion of plastic debris. Whales, dolphins, porpoises, turtles, manatees and seabirds have all been reported to have suffered from entanglement. 80 different species of whale and 6 species of turtle have been reported to have been tangled in plastics. Manatees have been found with scars or missing flippers due to entanglement. 56 species of seabirds are also known to have been affected. Derelict fishing gear also causes damage to coral reefs when nets or lines get snagged by the reef and break it off. According to the National Oceanographic and Atmospheric Administration, plastic debris kills an estimated 100,000 marine mammals annually, as well as millions of birds and fishes. One million sea birds and 100,000 marine mammals are killed annually from plastics in our oceans. (Greenpeace, 2006)

It seems rather obvious that this amount of material that is not meant to break down can wreak havoc on natural environments, leading to long-term issues for plants, animals, and people. Some of the major long-term effects of plastic pollution such as the Food Chain even affect the world's tiniest organisms such as plankton because it comes in different sizes: large and small, polluting plastics. When these organisms become poisoned due to plastic ingestion, this causes problems for the larger animals that depend on them for food. This can cause a whole slew of problems, each step further along the food chain. Moreover, it means that plastics are present in the fish that many people eat every day.

Plastic pollution may be linked to human well-being. Plastic debris results in a loss of recreational value (e.g. through beach litter), potentially depleting psychological restoration of humans in natural environments. In this regard, behavioural studies have shown that marine litter can undermine the psychological benefits normally experienced at the coast. More direct impacts on human health and safety may occur via accidents resulting in costs for medical treatment. In terms of pest control, it is well known that plastic litter provides breeding sites for pathogen-transmitting insects, such as Aedes albopictus, therefore facilitate the spread of the West Nile and dengue virus. Finally, plastic pollution inflicts a loss on the intrinsic value of nature, thus depletes important cultural services provided by an ecosystem. Eventually, this also touches on larger moral issues concerning the relationship between societies and the environment, which so far remain understudied. (Crippa & et.al., 2019)

4. How to solve plastic pollution

Everyone can do something to reduce the amount of plastic that enters the ocean and environment There are several ways we can do for our world. Aside from cleaning up our oceans, which is a very significant first step but not a long-term solution, the best way to address plastic pollution is to change our mindsets and habits with this controversial, nonetheless very useful material. We can do as follow: (Brian, 2017)

1) **Reduce.** To efficiently reduce plastic pollution, there is an evident need of reducing our usage of plastic. It means changing our everyday behaviors and not using plastic when there is a better alternative to it and only using plastic when strictly necessary. We can get started by reducing our own use of single-use plastics. Single-use plastics include plastic bags, water bottles, straws, cups, utensils, dry cleaning bags, take-out containers, and any other plastic items that are used once and then discarded. The best way to do this is by a) refusing any single-use plastics that you do not need (e.g. straws, plastic bags, takeout utensils, takeout containers), and b) purchasing, and carrying with you, reusable versions of those products, including reusable grocery bags, produce bags, bottles, utensils, coffee cups, and dry-cleaning garment bags. And when you refuse single-use plastic items, help businesses by letting them know that you would like them to offer alternatives.

2) **Reuse.** Plastic may cause pollution when poorly managed but it has lots of advantages too, such as being resistant. Many plastic items can, therefore, be reused or used for different purposes. Before throwing plastic items, it is important to consider how they can be reused.

3) **Recycle.** Plastic recycling consists of collecting plastic waste and reprocessing it into new products in order to reduce the amount of plastic in the waste stream. When you use single-use (and other) plastics that can be recycled, always be sure to recycle them. At present, just 9% of plastic is recycled worldwide. Recycling helps keep plastics out of the ocean and reduces the amount of "new" plastic in circulation.

4) **Support Bans**. Many municipalities around the world have enacted bans on single use plastic bags, takeout containers, and bottles. You can support the adoption of such policies in your community.

5) **Educate**. Another crucial solution is education in order to increase awareness and behavioral change. We're just beginning to realise the scale of the problem, but fortunately the answer is simple: make and use less plastic. People around the world have come together to end plastic pollution, and it's working. Greenpeace supporters have challenged Coca Cola to use less plastic, while countries like the UK have banned certain microplastics. Supermarkets are starting to talk about what they need to do. But we need to go much further to end the flow of plastics into the ocean. Food and drink companies need to slash the amount of unnecessary plastic packaging they use. We also need to get rid of single-use plastics and reducing plastic in our own life.

We shall consider how we can make changes in our everyday life to reduce the heavy burden of plastic pollution on our natural places, our wildlife and our own health. While plastic has many valuable uses, we have become over reliant on single-use or disposable plastic which leads to severe environmental consequences. We will be engaging society to awareness and inspiring action to form the global movement needed for plastic pollution free.

Governments and corporations have a responsibility to take action. 186 countries in the world agree to cut plastic pollution in May 2019 in the Conferences of Parties to the Basel conventions to include plastic waste in a legally binding framework which will make global trade in plastic waste more transparent and better regulated, while ensuring that its management is safer for human health and the environment. At the same time, a new Partnership on Plastic Waste was established to mobilize business, government, academic and civil society resources, interests and expertise to assist in implementing the new measures, to provide a set of practical supports, including tools, best practices, technical and financial assistance, for this groundbreaking agreement. (Mcrcia, 2019)

We can do to cut down our personal plastic footprints by 9 top tips as follow: (Alice, 2017)

1. **Carry a reusable bottle**. In the UK we use over 35 million plastic bottles every day! Carrying a reusable bottle is a great way to cut your plastic use and save money too! There is even an app that tells you where you can refill your bottle for free.

2. **Say no to plastic straws.** Plastic straws are bad news for our oceans. Next time you order a drink, think about whether you need a straw – and if you don't, just say no! You can also ask your local pub to stop adding straws to drinks as standard and offer paper straws to those who want one

3. **Take a reusable coffee cup.** 2.5 billion coffee cups are thrown away every year in the UK and less than 1 in 400 are recycled. Carry a reusable cup with you, some cafes even offer a small discount if you use your own cup.

4. **Avoid excessive food packaging**. Whether it's making different choices in the supermarket or choosing a different place to shop, we all can try and cut down the plastic we buy. And as an added bonus, loose fruit and vegetables is often cheaper than pre-packaged alternatives!

5. **Use refill stations for detergents**. There are some products which is difficult to avoid a plastic container (for example washing up liquid or laundry liquid). The good news is that there are an increasing amount of places where you can refill your old bottles.

6. **Say no to disposable cutlery**. We have all been in a cafe or at a train station when we have bought a salad or a yogurt but the only cutlery on offer is plastic Whilst it's hard to plan for every opportunity, consider carrying a spoon or fork (or spork) in your bag or keeping cutlery in your desk at work.

7. **Get your milk delivered**. Although the early morning sound of a milk float is not as common as it used to be, there are still lots of places in the UK where you can get milk delivered in glass bottles, which are then collected and reused.

8. **Avoid microbeads.** The UK government have announced a ban on microbeads. However until the ban comes into force in 2018, there will still be products on the shelves, so keep checking those labels before you buy and avoid products containing polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET), polymethyl methacrylate (PMMA), polytetrafluoroethylene (PTFE) and nylon.

9. **Carry a shopping bag.** Since the plastic bag charge was introduced in England, there's been a massive 85% drop in their use. Many of us are used to carrying an extra bag with us – if you still find it hard to

remember, try a foldaway one that you can carry in your normal day bag. Making just a few small changes can have a big impact on the amount of plastic we use on a day-to-day basis.

Plastic pollution now has a price tag attached to it and the figure is quite simply astonishing. In the region, 4.8 to 12.7 million metric tons of plastic waste has been dumped into the world's oceans since 2010, at a severe cost to marine life. The financial cost of that negligence has been calculated and revealed in a new study published in Marine Pollution Bulletin. The pollution caused damage to fisheries, recreational activities and global well-being and could total an unfathomable US$2.5 trillion. (Alice, 2017) Moreover, the comprehensive study reports that marine ecosystem services, such as providing food for humans and storing large amounts of carbon dioxide, have added up to US$49.7 trillion per year since 2011. Findings indicate that plastic pollution harms the productivity of these services and causes a decline between 1-5% in marine ecosystem service delivery, which is equal to an annual loss of US$500 billion to US$2.5 trillion. (Alice, 2017) Researchers analyzed how ingesting plastics and becoming entangled in them impacts birds, fish, mammals and turtles, and found that it caused a decline in efficiency and productivity of commercial fisheries and has a direct risk to fish stocks. Seafood is the main source of animal protein for 1.4 billion people, which makes up 19% of the global population. Even some aquatic species that live in the deepest, most remote parts of the oceans have ingested plastic, and there is growing concern over the amount of plastic humans are ingesting from eating seafood**.** (Alice, 2017)

5. Conclusion

The presence of plastics in the environment, with the amount of 8 out of 300 million ton of plastic is annually produced and chucked into the sea whether as macroplastic debris or as microplastics, has widely been recognised as a global issue. It represents one of the most challenging anthropogenic phenomena that affects our planet and is among the major threats to biodiversity due to potential entanglement and ingestion. While the issue of plastic and microplastic pollution in aquatic environments (marine and freshwater) has been gaining increasing attention, the problem of plastic contamination in the terrestrial environment has remained widely unexplored. Plastic and micro plastic pollution may be more dramatically seen in the oceans; however, more than 80% of the plastics found in marine environments has been produced, consumed and disposed on land. Therefore, plastic pollution on land is a problem of both contamination and damage to terrestrial environments and transfer to aquatic systems. High level of microplastics contamination on land has been observed – an estimated 4 to 23 times larger than in the oceans. (Anderson & et.al, 2018, Alice & et.al., 2017) Plastic waste is becoming a scourge of the earth. Lack of recycling has led to massive islands made of plastic which are being created in the ocean. We're all responsible otherwise by 2050, we will be eating plastic every time we order seafood

6. Suggestion

Although plastics make our lives easier with the convenience, speed and quality that they bring, they cause environmental pollution because of overuse. We should not see plastics that we use as waste. We should leave them into recycle bins knowing that they are one of the significant raw materials of recycling in a circular economy. Moreover, everyone needs to be on board to solve this problem and individual actions count.

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UTILIZING CUSTOM MOLDED SEATING ORTHOTIC FOR AN INDIVIDUAL WITH QUADRIPLEGIA GMFCS-V: A CASE REPORT

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ABSTRACT

Spastic quadriplegia is a severe case in Cerebral Palsy. The complication and deformity from long term care have been presented such as scoliosis or hip dislocation. The purpose of this study was to identify the effectiveness of custom molded seating (CMS) after implemented in 4 months. The parameters were composed of (1) Cobb angle (2) Seated postural control measurement (SPCM) (3) Migration percentage (4) Caregiver burden and (5) Satisfaction of assistive device. The participant was diagnosed as CP with spastic quadriplegia (GMFCS V) and flexible scoliosis, age 7 years old, never used CMS, and independent sitter. The case was recruited from Siriraj. CMS and wheelchair were provided following the protocol at the Sirindhorn School of Prosthetics and Orthotics (SSPO), Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand. We found that 1) the Cobb's angle and migration percentage were maintained after using CMS at immediate use and 4 months after use 2) CMS improved upper limb ability, change alignment and head function 3) The parent satisfies with CMS and service of the department.

Keywords: Cerebral palsy, Quadriplegia, Custom molded seating

1. Introduction

Quadriplegia or total body involved Cerebral palsy (GMFCS V) is a severe pathology that affects body movement, function, contributes to muscle imbalance and impaired hand function. "Windswept deformity" or "Wind-blown syndrome" is a clinical manifestation among some children with Cerebral palsy (CP), occurred in this group of individuals (Pountney & Green, 2006). The term describes an abduction and external rotation position of one hip with the opposite hip in adduction and internal rotation. The Windswept deformity leads to scoliosis, pelvic tilting and hip dislocation or subluxation. These conditions could develop into structural scoliosis, impair the child's sitting ability, and interfere with comfort when lying and sitting. Windswept deformity is a severe problem that is difficult to treat. These complications might develop pneumonia. (Serel Arslan, Demir, & Karaduman, 2016). It is a severe problem that is difficult to treat, and that inhibits seating comfort and standing. Accordingly, all of these limitations are only one aspect in caring for children with this severe pathology and ultimately reduces quality of life of both the person and caregiver (Eker & Tüzün, 2004). To assess the scoliosis, Cobb angle measurement is the gold standard for evaluation. Moreover, Reimer's migration percentage measurement is presented as a gold standard for hip dislocation or subluxation. These methods are usually used for evaluation in CP (Kotwicki & Jozwiak, 2008; Terjesen, Lange, & Steen, 2000) (Ryan et al., 2009).

Seating intervention or orthotic treatment have developed, each serving a particular consumer need. These categories are postural control, tissue integrity and comfort. (Reference Textbook AT) Postural control can be defined as the ability to control the body's position in space for the purposes of stability and orientation. (Reference) Stability tasks can be considered static, when the body is stationary such as sitting, or dynamic, when the body is moving. Postural orientation is the ability to attain and maintain an optimal functional relationship between body segments, a task, and the environment. In patients with CP, these interactions are known to be affected, which lead to postural control impairment and the maintenance of stability is critical. The common problems related to seating intervention for CP are instability in the seated position and inappropriate load distribution.These problems can lead to the complication after using seating intervention in CP. Sirindhorn School of Prosthetics and Orthotics (SSPO), Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand, have developed a custom molded seating (CMS) for CP (GMFCS V). We aim to prevent scoliosis and hip dislocation or subluxation, which cause of deformity. The principle of CMS is to prevent coxa valga of hip joints, stabilized the trunk to prevent the scoliosis, re-arranged pressure distribution, prevent pressure sores and ulcers. Therefore, the outcomes were presented via Cobb angle (to identify the scoliosis), sitting posture and function using seated postural control measurement (SPCM), degree of hip subluxation using migration percentage as well as satisfaction and caregiver burden via questionnaire in an individual with spastic quadriplegia.

2. Research Objective

To identify the effectiveness of CMS in CP with spastic quadriplegia by using;

(1) Cobb angle

(2) Alignment and function

(3) Migration percentage

(4) Satisfaction

(5) Caregiver burden

3. Research Framework

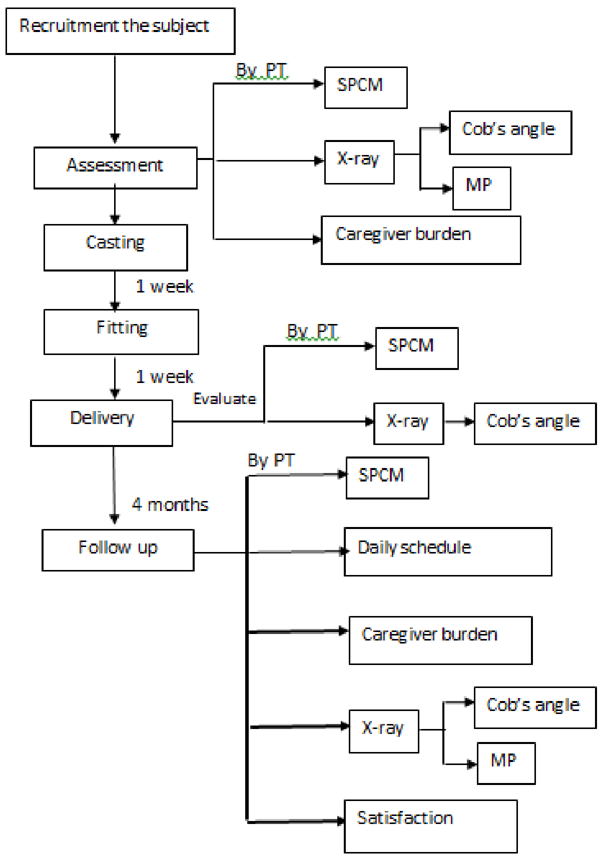


Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

This case report described the process of designing, manufacturing, testing an assistive device (CMS), and monitoring the progress before and after implemented as a quantitative information. Moreover, the interview of caregiver's opinion related to CMS was also applied.

4.2 Population and Sample

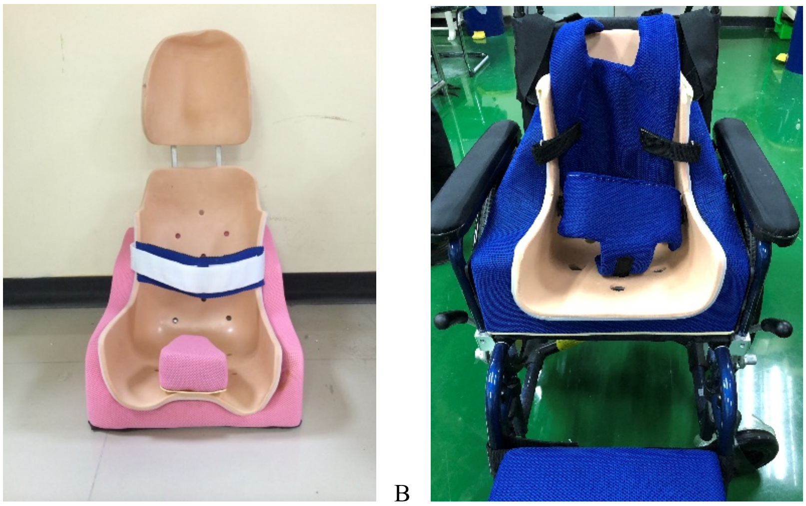
The study took place at the SSPO and received ethical approval the IRB committee of Siriraj Hospital, Mahidol University. The participant was recruited at the outpatient clinic of the department of Rehabilitation Medicine, Mahidol University. The participant had spastic quadriplegia (GMFCS IV) with flexible scoliosis, age 7 years, never used a CMS, independent sitter. The parents signed an informed consent and agreed to provide assent to participate

4.3 Variable

The variable of this research to compare pre-post intervention and follow up 4 months are Cobb angle to measure scoliosis, Migration percentage to measure hip joint position, Seated postural control measurement (SPCM) to measure function and alignment and satisfaction and caregiver burden for measure satisfy and burden of parents

4.4 Research Instrument

The child was evaluated and received an individually custom molded seat made with a rigid frame and supported with a standard wheelchair. The device was supported at the trunk and seat by an impression molded with bead bag which received vacuum suspension. Later, a plaster model was created and a sheet of plastic polyethylene 5 mm in thickness for the outter shell and a plastazote liner 1 cm was thermoformed over a plaster model. Moreover, the device was fit into different supporting frames; wheelchair, power chair, strap, pommel (Figure 1). The head and foot rest were required in order to provide additional support.

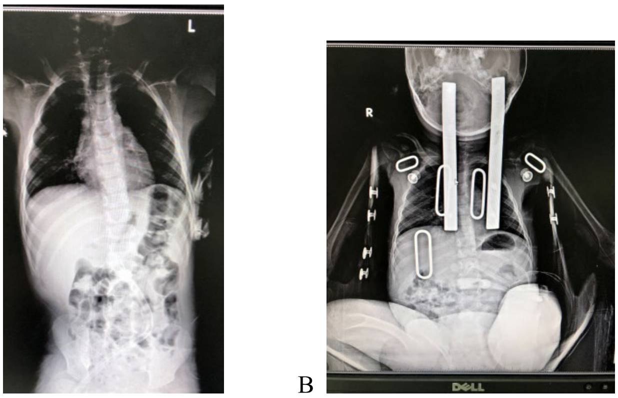


A B

Figure 1. These images depicting the (A) custom seating and (B) custom seating wheelchair for CMS

4.5 Data Collection

The data were collected pre-post and follow up 4 months after implementing the CMS. Alignment and function of the seat were measured by using Seat postural control measurement and physical therapist who has an experience and expert in English language will collect the data. Scoliosis was measured after the patient does X-ray by the same certified of prosthetist and orthotist who have an experience about scoliosis. Moreover, migration percentage was evaluated from X-ray by the same rehabilitation doctor. A Questionnaire was developed by integrating the Quebec User Evaluation of Satisfaction with Assistive Technology (QUEST 2.0) and caregiver burden for evaluating the satisfaction and burden. There was assessed by the parent who take care the child at least 6 hours per day. The instrument passed the construct validity and reliability assessment.



A B

Figure 2 These images depicting the X-ray film before using the CMS (A) and after using the CMS (B)

4.6 Data Analysis

The data were analyzed by using SPSS to compare pre-post intervention and follow up 4 months in term of

- Cobb's angle
- Alignment and function
- Migration percentage
- Satisfaction
- Caregiver burden

5. Research Findings

The condition of the participant need supported from head downward, and they understood a small number of instructions as a result of their cognitive level and inability to adhere to practitioner instructions. The results of the pre and post treatment of the CMS X-rays indicated an improvement in the sagittal plane. The pre CMS scoliosis was the same as post intervention and the SPCM in function scores pre and post CMS were 12 and 18, respectively. Function saw significant changes in head movement and alignment improved in the sagittal view in terms of thoracic kyphosis. The SPCM in alignment scores pre and post CMS were 61 and 71 respectively, which accounted for a difference of 10%. For follow up 4 months in alignment and function were 76 scores. All skeletal alignments were different in a better position with exception of knee flexion and extension and ankle dorsiflexion and plantarflexion. The caregiver burden questionnaire showed that his mother spent a lot of time to working to prevent falls and accidents as well as spending time giving affection and reassurance to the child. For hip joint pre-migration percentage left and right are 1/0.32 and post-migration percentages are 1/0.3.

In terms of satisfaction, the caregiver was satisfied in term of device and service that shown in QUEST 2.0. The total score of satisfaction is 60.

Table 1 The results at 3 time points

Parameters	Pre CMS	Post CMS	Follow up 4 months
SPCM	61	71	76
Cobb's angle	7	3	4
Migration percentage(Lt/Rt)	0.85/0.32	1/0.23	1/0.3
Caregiver's burden (Spending time/Difficulty)	46/45	41/33	29/31
Satisfaction	-	53	56

6. Discussion

In the study GMFCSV child was included because the children in these levels required seating system. We selected new case patient and gave suggestion about device to reduce factors of experience and skill of the caregiver. Clearly the family brought their own skill to support the participant.

For this comparison of pre and post intervention on the sitting posture, we hypothesized that alignment and function would be improved There was also different in favor of CMS in alignment and functions score of SPCM. The result presented that using CMS change alignment and head function because CMS stabilized pelvis and lower extremities and stabilized the shoulder, head and body. Hulme et al. (1978) showed that special seating improved sitting posture and head control. Washington K (2002) supported that custom-made insert improved pelvic alignment, increase postural stability and improve somatosensory feedback. During assessment sessions an upright posture is required. Gavin-Dreschnack D (2004) suggested that provide posterior wall of seating system maintained lumbar lordosis. In this study, we retained the lumbar lordosis using lumbar padding and pelvic belt, we supported the hip flexion in 90 degree when the child sits into CMS. Nwaobi OM (1988) reviewed voluntary control and shoulder movement were best obtained in at 90 degrees in hip flexion. For evaluation of upper limb function, we evaluated the data per patients. An analysis of SPCM hand function section showed significant differences between pre and post intervention. It caused by the severity of disease. Noronha J (1989) presented that improved postural control of children with cerebral palsy will affect the upper limb ability.

There is currently a lack of a standard for assessing the spinal curves in children who cannot sit dependently. The basic position requires the child to maintain a neutral position with assistance for support. In our clinic, we try to let the patient choose a natural posture with only limited assistance for support and without force correction, however, this individual in the study had severe spasticity which cannot remain trunk without erecting spine. Furthermore, we attempted to position the patient in as best a possible position for baseline radiography, however, there is still no standard for this radiographic procedure. A more standardized baseline positioning could posit a better reference for post treatment radiography.

An improvement in reduction of thoracic kyphosis was observed by using Cobb angle. Some studies presented that an adaptive seating device and spinal orthosis can reduce scoliosis during the duration of use (Heller, Forst, & Hengtler, 1997). Still, spinal orthotics have been shown to exhibit no impact on scoliosis curve, shape, or rate of progression in spastic quadriplegic patients who were followed-up after fusion (Miller, Temple, & Miller, 1996) Satisfaction was discussed in unit of service and satisfaction. The project consistent with the hypothesis set that has positive service and satisfaction. The level of overall satisfaction was quite satisfied (4.65) and very satisfied (4.75). This was consistent with the research hypothesis. It is also finding of a research on satisfaction toward both the aspects of the device and service being high. And it was found that the average satisfaction toward service was higher than the device. This way because of their access to service easier than the device.

7. Suggestion

(1) This research is a guideline for improved quality of Custom molded seating in term of material and design for children who have another disease.

(2) The custom molded seating device appropriate for children with cerebral palsy who has spastic quadriplegia to improve stability of the trunk and hand function.

(3) For the future research, we recommend to increase the number of participants for increasing the potential results.

8. Acknowledgement

I would like to special thanks to Siriraj Hospital, which support my research and the place for collected the data. Moreover the patient and their parents whose participate in this research. And I would like to express appreciation to the advisor and co-advisor who support this project.

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THE EFFECT OF TAS2R38 GENE POLYMORPHISM (P49A) ON DIETARY INTAKE IN THAI ADULTS

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ABSTRACT

Taste 2 receptor member 38 (TAS2R38) is a bitter receptor gene in human which responses to bitter taste from 6-n-propylthiouracil (PROP) and verities of bitter substances that may leads to alteration in food preferences which could resulted in obesity. This study was conducted to investigate an effect of proline changed to alanine at position 49 (P49A) gene polymorphism in TAS2R38 gene on dietary intake as well as anthropometric data. Two hundred and thirty-four Thai subjects were participated in this study. Subject with PP genotype had a trend in lower carbohydrate, saturated fat and cholesterol intake than variant types, but no statistical significant was observed. The genetic polymorphism of TAS2R38 at P49A position played in bitter taste perception. It might affect to other taste such as sweet taste, therefore impact to energy intake. However, the mechanism and results were not clear in the present study. Further study should concern more in the interaction between genetic and environment factors.

Keywords: TAS2R38, Nutrigenomics, Dietary intake, Thai adults

1. Introduction

Human can recognize the bitter perception is mediated by bitter taste receptors (TAS2Rs), there are 25 of TAS2Rs expressed in human which belongs in G protein coupled receptors (GPCRs) (Chandrashekar et al. , 2000). There were many reports suggesting that the acceptance of products and bitterness aftertaste sensitivity might relate on human genetics (Simons et al. 2008). TAS2R38 is a bitter taste receptors that perceive bitterness from phenylthiocarbamine (PTC) and 6-n-propylthiouracil (PROP) (Ooi et al., 2010). TAS2R38 gene located on chromosome 7q, which three single nucleotide polymorphisms (SNPs) including P49A (rs713598), A262V (rs1726866) and V296I (rs10246939) were reported as bitter taste status polymorphism (Sandell et al., 2014).

The polymorphism of P49A (rs713598), A262V (rs1726866) and V296I (rs10246939) has 3 amino acid substitutions which are proline-alanine-valine (PAV) and alanine-valine-isoleucine (AVI) haplotype that are important toward PROP bitter taste sensitivity. PAV haplotype is associated as a PROP sensitivity status and AVI haplotypes is a PROP non-sensitivity status. PAV and AVI haplotypes are the most common haplotypes for SNPs in TAS2R38 but the others haplotypes are consider as rare (AAI, AAV, AVV, PAI and PVI) and has an intermediate PROP tasting sensitivity (Boxer and Garneau, 2015; Calancie et al., 2018).

There was a study shown that PAV/PAV diplotype (PROP-supertaster) perceives greater intensity taste in all sweetener and blends in cola beverages, it is shown that PROP-status in TAS2R38 might consider as a marker food preferences and diet selection (Tepper, B.J. 2008). These SNPs could affect taste perception and resulted in less consumption of vegetables due to its bitterness and might encourages more consumption of fatty foods and sweets food and was resulted in obesity or overweight (Ooi et al., 2010). Obesity is associated with diabetes and cardiovascular disease which increased morbidity and mortality rate (Leong and Wilding, 1999). In the past, the prevalence of overweight and obesity in Thailand in adults with BMI $\geq$ 25 kg.m-2 was increased from 18.2% in 1991 to 24.1% in 2004 and 37.5% in 2014 as evidence provided by National Health Examination Survey I-V (Aekplakorn and Mo-suwan, 2009; Aekplakorn et al., 2016). This prevalence leads to the question of relationship between TAS2R38 and food intake in Thailand adults.

In two hundred and fifteen Malaysian subjects, food consumption such as green tea, mayonnaise and whipped cream, but not soy products, vegetables, and other sweet/fat foods, were associated with the P49A genotypes. P49A also shown to affected the vegetable consumption in Brazilian population, Colares-Bento et al., 2012 reported that population with P allele consumed less arugula and chard which had bitter taste. Therefore, P49A which impact to bitterness phenotype should further conduct in Thai subjects.

In the present study, the aim was to investigate the relationship between rs713598 in TAS2R38 gene and dietary intake among two hundred and thirty-four Thai subjects. It is possible that TAS2R38 genetic polymorphism might affect with a dietary intake due to its bitterness.

2. Research Objective

(1) To investigate the relationship between rs713598 in TAS2R38 gene and dietary intake among Thai adults.

(2) To investigate the relationship between rs713598 in TAS2R38 gene and anthropometric data among Thai adults.

3. Research Framework

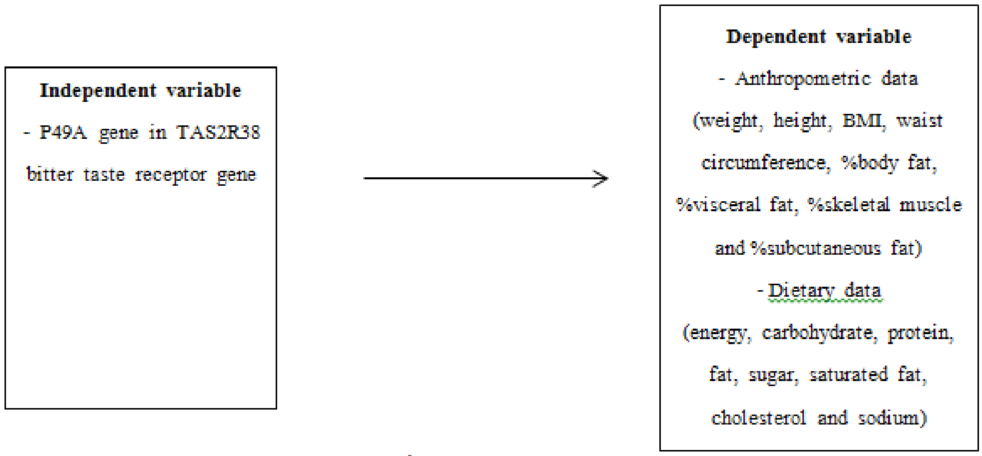

Figure 1 Research Framework

4. Research Methodology

4.1 Research Design

4.1.1 Anthropometry measurement

Body impedance analysis (BIA) digital scale (Omron karada scan HBF-375, Omron Healthcare corporation, Tokyo, Japan) was used for body composition (total body fat, visceral fat, subcutaneous fat, skeletal muscle, rating metabolic rate, body age). Weight and height were used for BMI calculation and waist circumference was measured by measuring tape in centimeter scale.

4.1.2 Dietary assessment

Three days food records are provided for the participants to records their eating habits during weekdays and weekend. Participants have to write down every food consumption during 3 days (2 days for weekdays and 1 day for weekend or holiday).

4.1.3 Genotyping analysis

In the DNA analysis, genomic DNA were extracted from saliva samples. Participants have to stop drinking or eating for 30 minutes to 1 hour prior to sample collection (Garbieri et al, 2016.). Participants have to rinse their mouth before samples collection, after that, the participants were given a cup of 10 mL of normal saline (0.9 g/100mL) and asked again to rinse their mouth violently and then expectorated back into a cup. The samples were stored at -20˚C for DNA extraction.

DNA extraction were using Flexigene®DNA kit (Qiagen, Hilden, Germany) and protocol adapted from DNA isolation for whole blood sample by FlexiGene® DNA handbook.

PCR process, P49A (rs713598) were amplified by the set of forward and reverse primer. The primer sequences for P49A were 5'-ccttcgtttcttggtgaatttttgggatgtagtgaagaggcgg -3'; and 5'-aggttggcttggtttgcaatcatc-3', respectively. The total volume for each individual PCR tube with reaction mixture were 25 µL with 5 µL of extracted DNA, 1 µL for each forward and reverse oligonucleotide primers (2 µL in total), 5.5 µL of sterile water, 0.1 µL of Kapa Taq DNA polymerase (KAPA Biosystems, Massachusetts, U.S.A.), 0.5 µL of dNTP Mix (dATP, dCTP, dGTP, dTTP), 2.5 µL of 10X KAPA Taq buffer and 9.4 µL of MgCl2. The PCR were performed through 35 cycles with 95˚C for 30 seconds for the denaturation, followed by annealing temperature at 65˚C for 30 seconds and extension temperature at 72˚C for 30 seconds before went through 72˚C for 1 minute as final extension step.

The genotyping of P49A (rs713598) polymorphism was analyzed by restriction fragment length polymorphism-polymerase chain reaction (RFLP-PCR) with *HaeIII* restriction enzyme (ThermoScientific, Massachusetts, U.S.A.) 1µL of *HaeIII* enzyme, 2µL mixer of dye and buffer, 20µL of sterile water and 7µL of PCR products were added in micro tube before incubated at 37˚C for 10 minutes. Electrophoresis were done using 3% agarose gel with RLFP products, 50 bp GeneRulertm Low Range DNA ladder (ThermoFisher Scientific, Massachusetts, U. S. A.) were used for identification for genotype and viewed under UV transillumminator. Genotype were identified as PP homozygote, PA heterozygote and AA homozygote.

4.2 Population and Sample

Two hundred and thirty-four Thai adult subject were recruited (69 males and 165 females). The inclusion criteria were ages between 18 - 35 years old which had better chemo perception compared to older adults (Nordin, S. 2009). Subjects must be healthy and no recent illness including no congenital illness, good oral condition, non-smoker, no food allergy and no consumption of drugs that affect the taste perception (e.g. Anti-anxiety agents, anti-bacterial and anti-fungals, anti-pressants, anti-epileptic, anti-hypertensive and cardiac drugs, anti-histamines and decongestants, anti-inflammatory agents, anti-migraine agents, anti-parkisonian drugs, anti-psychotics, anti-virus agents, bronchodilators, smoking cessation aids and thyroid drugs) (Carli et al., 2017). The exclusion criteria were pregnancy and dental disease including dental caries (Li, F. 2013).

The recruitment for interested volunteers were done using poster and individual invitation. Brief introduction information was provided for interested volunteers. After the agreement to participate, subjects was signed the informed consent form to participate in the study. The inform consent was gave to all subjects and The ethic was approved by the Center of Ethical Reinforcement for Human Research of Mahidol University (MU-CIRB 2018/036.0502)

4.3 Variable

1. Independent variable is P49A SNPs in TAS2R38 bitter taste receptor
2. Dependent variables are anthropometric data and body compositions (i.e. weight, height, BMI, waist circumference, %body fat, %visceral fat, %skeletal muscle and %subcutaneous fat) and dietary intake nutrients (energy, carbohydrate, protein, fat, sugar, saturated fat, cholesterol and sodium)

4.4 Research Instrument

There were 3 parts of method in this study and used different tools for data collection.

1. Anthropometric data collection were done using digital scale (Omron karada scan HBF-375) for BMI, %body fat, %visceral fat, %skeletal muscle and %subcutaneous fat collection. Waist circumferences were measured by measuring tape.

2. Dietary assessment were collected by 3 days food record. After measured subjects for anthropometric data, subjects were asked to write all of food consumption for 3 days and collected the record after finished recording 3 days after that.

3. DNA and genotyping were done by Flexigene®DNA kit (Qiagen, Hilden, Germany) for DNA extraction, Thermal Cycler (BIO-RAD T100™ Thermal Cycler, Bio-Rad Laboratories incorporated, California, USA.) were used for PCR method, *HaeIII* restriction enzyme for RFLP-PCR method (Thermo Scientific, Massachusetts, U.S.A.), 50 bp GeneRulertm Low Range DNA ladder genotype identification (ThermoFisher Scientific, Massachusetts, U.S.A.) and PowerPactm power supply for electrophoresis (Bio-Rad Laboratories incorporated, California, USA.).

4.5 Data Collection

Two hundred and thirty four Thai subjects were asked to collected anthropometric data (weight, height, BMI, waist circumference, %body fat, %visceral fat, %skeletal muscle and %subcutaneous fat). After that saliva was collected for genotyping, also 3days food record was provided for recording all food consumption within 3 days (2 weekday and 1 weekend or holiday). After finished the recording, dietary data were collected from subjects.

4.6 Data Analysis

Data expressed as mean and standard deviation. To study the effect of P49A genotype on BMI and body composition, and dietary intake were performed by independent t-test. Significance level was set at ($p < 0.05$). To identify the allele frequency in subjects, chi-square test was used for Hardy Weinberg equilibrium (HWE) analysis. All statistical analyses was performed by SPSS version 18 for windows (Chicago, USA.).

5. Research Findings

5.1 Data description of participants

Among two hundred and thirty-four subjects in this study, the males and females were 29.5 and 70.5 %, respectively. The subjects ranged from 18 to 45 years old with the mean age of 24.09 ± 7.00 years old. BMI in male had a higher level than female

Table 1. Characteristic of subjects

Data	Participants			
	Total (N = 234)	Male (N = 69)	Female (N = 165)	P-value
Age (years)	24.09 ± 7.00	24.54 ± 7.38	23.9 ± 6.86	0.530
Weight (kg)	61.02 ± 14.88	71.22 ± 13.21	56.76 ± 13.43	<0.05
Height (cm)	162.49 ± 8.01	169.61 ± 8.59	159.51 ± 5.51	<0.05
BMI (kg/m2)	22.94 ± 4.72	24.48 ± 4.31	22.29 ± 4.75	0.001
Waist circumference (cm)	77.60 ± 12.93	84.50 ± 12.33	74.71 ± 12.09	<0.05

Data were expressed as mean and standard deviation using independent t-test for comparing male and female participants. p-value ≤ 0.05 was considered statistical significant.

5.2 Genotypes distribution

The genotype distribution of TAS2R38 bitter taste receptors gene at P49A (rs713598) position was showed in **Table 2.** P49A followed the Hardy-Weinberg equilibrium (HWE) with the p-value greater than 0.05 were described as consistent with HWE. Alanine (A) were the minor amino acid composition in P49A and had a distribution of 35% in 234 Thai subjects which similar to the study of Malaysian subjects (Ooi et al., 2010)

Table 2. Genotype distribution of P49A

	P49A (rs713598 , c.145G>C)					
Genotypes	**Total (%)**	**HWE**	**Male (%)**	**HWE**	**Female (%)**	**HWE**
PP	100 (42.7%)	A = 0.35	30 (43.5%)	A = 0.36	70 (42.4%)	A = 0.35
PA	103 (44.0%)	p = 0.583	28 (40.6%)	p = 0.311	75 (45.5%)	p = 0.989
AA	31 (13.2%)		11 (15.9%)		20 (12.1%)	

Hardy-Weinberg equilibrium p-value; HWE p-value, for comparison among genotype in groups; using p-value for genetic frequencies comparison between male and female; SNPs P49A, Proline (P) coding as C allele and Alanine (A) coding as G allele;

5.3 Association between genotypes and anthropometric data

The comparison between wild genotypes and variant genotypes was reported with the difference in anthropometric data (**Table 3.**). No statistical significant was observed between genotype and anthropometric data.

Table 3. The association of P49A genotype and participants characteristic

Data	**P49A (N=234)**		
	Wild (PP) (N=100)	**Homo and Hetero (AP+AA)(N=134)**	**P-value**
Age (years)	24.88 ± 7.43	23.50 ± 6.64	0.137
Weight (kg)	62.28 ± 15.92	60.09 ± 14.05	0.266
Height (cm)	162.93 ± 8.73	162.16 ± 7.44	0.469
BMI (kg/m2)	23.19 ± 5.40	22.75 ± 4.16	0.485
Waist circumference (cm)	78.65 ± 13.84	76.82 ± 12.20	0.285

Data were expressed as mean and standard deviation by using independent t test. p-value <0.05 was considered statistical significant.

5.4 Association between genotypes and dietary intake

The comparison between genotypes and dietary intake from three days record were showed in **Table 4**. The result showed that energy intake was not difference between genotype groups. In subject with

PP genotype carbohydrate, saturated fat and cholesterol intake seem to lower in subject with PP genotype than variant type however no statistical significant was observed.

Table 4. The association of P49A genotype and dietary intake

Nutrients	P49A (N=234)		
	Wild (PP) (N=100)	**Homo and Hetero (AP+AA)(N=134)**	**P-value**
Energy (Kcal)	2157.13 ± 728.59	2219.52 ± 798.87	0.540
Carbohydrate (g)	270.01 ± 86.81	283.20 ± 98.51	0.288
Protein (g)	92.39 ± 43.32	97.88 ± 63.89	0.459
Fat (g)	77.78 ± 36.18	77.94 ± 37.66	0.974
Sugar (g)	71.24 ± 41.87	75.67 ± 54.07	0.497
Saturated fat (g)	20.29 ± 10.34	22.81 ± 22.10	0.291
Cholesterol (mg)	419.04 ± 306.25	470.31 ± 303.57	0.204
Sodium (mg)	3864.23 ± 1874.46	4096.93 ± 1968.65	0.362

Data were expressed as mean and standard deviation by using independent t test. p-value <0.05 was considered statistical significant.

6. Discussion

TAS2R38 is one of the important bitter taste receptors that available in human and P49A are one of its SNPs that affects the PROP and PTC status which express bitter taste (Kim et al., 2003; Ooi et al., 2010). In the present study, genetic distribution of P49A was followed the Hardy-Weinberg equilibrium (p>0.05) that is a null model of the relationship between allele and genotype frequencies, under assumptions of no mutation, no migration, no bias and large in population size (Keats et al., 2013). The frequencies of P49A variant was 35% and was nearly similar to Malaysia subjects (Ooi et al., 2010) which is nearly by ethnicity as Asian population.

Anthropometric data had no difference between P49A genotype as in previous studies, Ooi et al., 2010 had studied on association of P49A genotype and aversion to vegetables and sweet/fat foods in Malaysian subjects and found no association between TAS2R38 and anthropometric measurement. Timpson et al., 2005 had not found the association between TAS2R38 (P49A and A262V) and Coronary heart disease, BMI, physiologic and dietary characteristic in British Women's Hearth and Health cohort and concluded that P49A and A262V were not an important determination on eating behavior. Perna et al., 2017 also suggested that P49A (rs713598) had no influences on body composition in either fat or muscle mass. These evidences may leads to the possibility that P49A alone is not associated with anthropometric data. However, Tepper et al, 2008 study found that PTC phenotype in female were associated with BMI and waist circumferences. It is likely that TAS2R38 may need more than one SNPs to determine the anthropometric data.

In dietary intake results, no statistical significant was found which had similar results to previous studies (Yackinous and Guinard. 2002; Ooi et al., 2010; Schembre et al., 2013). However, subjects with PP genotype had a trend of lower average in energy intake and macro nutrient intake such as sugar, cholesterol, and saturated fat than variant genotypes. The trend was similar to the previous studies that involved association between TAS2R38 and intakes (Choi and Chan, 2014; Shafaie et al., 2015). It is likely that PROP taster may dislike sweet taste. Looy and Weingarten (1991) had reported that most of their PROP taster subjects were sweet disliker and also reported that those subjects also experienced more complex sensation other than sweet taste on pure sucrose solution. PROP taster perceives more intense taste than PROP nontaster due to more taste bud numbers (Miller and Reedy, 1990). Moreover, subjects with P allele disliked saturated fat food source such as whipped cream more compared to non-taster A allele (Ooi et al., 2010). However, the mechanism could not clear. Not only P49A of TAS2R38 genetic polymorphism but environment factors also impacted to eating pattern. Therefore further study should concern more in the interaction between genetic and environment factors.

In conclusion, the present study reported that P49 alone may not appropriate for determination of anthropometric data and dietary intake. From this studies although the association were not found but the trend of dietary intake were similar to previous studies which suggests the possibility of interaction among intake, anthropometry and genetic. However, the study on other genetic interaction and environment factor are needed for further understanding of TAS2R38 SNPs.

7. Suggestion

Further study should be conduct on another gene and environmental factors which associate to the function of TAS2R38 .

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FACTORS AFFECTING THE ONLINE FOOD ORDERING THROUGH DIGITAL APPLICATION PLATFORMS

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ABSTRACT

This study attempts to study the relationship between marketing mix and online food ordering through digital application platforms in Thailand. A total of 400 usable samplings of e-marketplace customers are obtained. The findings reveal that the predictor variables of product (β = 0.204, t = 4.735, P = 0.000), price (β = 0.243, t = 7.957, P = 0.000), place (β = 0.176, t = 5.387, P = 0.000), and promotion (β = 0.211, t = 2.282, P = 0.000) are achieved significance at the 0.05 level.

Keywords : Marketing Mix, Online Food Ordering, Purchase Decision Making

Introduction

New digital reality can unlock significant opportunity for business, and also can disrupt the business at the same time. In the context of restaurant business, it rapidly changes new online platforms race to capture markets and customers across globe. The opportunity for new delivery is to extend food delivery to a new group of restaurants and customers. Rather than competing directly with the aggregators, new-delivery players are expanding the overall market. However, it is possible that in the future even lower-end traditional-delivery restaurants will migrate to new delivery because they will find it more cost efficient to outsource logistics; thus, new delivery poses at least a potential threat of disruption to the aggregators. Increasing of digital technology is reshaping the market. Consumers accustomed to order food online through applications or websites, with providing convenience and transparency, increasingly expect the same experience when it comes to ordering food. Furthermore, restaurant businesses have also adopted the digital business strategies, which are selling make to order (MTO) food without having a physical store by using digital platform as a medium to marketing with its customers. Worldwide, the market for food delivery stands at €83 billion, or 1 percent of the total food market and 4 percent of food sold through restaurants and fast-food chains. It has already matured in most countries, with an overall annual growth rate estimated at just 3.5 percent for the next five years (Hirschberg, Rajko, Schumacher, and Wrulich, 2019).

Online Food Ordering and Delivering

A significant change in the Thailand food delivery market is the entering of the famous leading food delivery service agency via online platform such as Grab Food, LINEMAN, GET, Panda Food, and more. Since the digital technology offers real convenience to consumers, over the traditional marketplace, including food ordering, delivery, and tracking all the foods being ordered by customers in real-time information about the products being presented to consumers on an digital platform or application on mobile phone, it is a much broader assortment than any restaurant could offer. Furthermore, restaurant chains are being forced to add channels for receiving food orders from outside customers and offer a wider variety of choices. K-Research (a part of Kasikorn Bank) forecasted that the food delivery business in 2019 will amount to 33-35 billion baht, which will be up by 14% from last year. One of main reasons makes the food delivery is the food ordering from applications. The business model is transforming consumer behavior as well as the restaurants' food supply chains (Kbank, 2019). (https://kasikornresearch.com/en/analysis/k-econ/business/Pages/z2995.aspx). However, while the digital platform can provide a massive opportunity for the food delivery industry, there are several challenges that must be overcome. The growth in new delivery is driven by two sources of consumer demand. This first is as a substitution for dining in a restaurant. With new delivery, consumers can dine at home with the same quality food they would enjoy at a fine restaurant. Some platforms even include Michelin-starred establishments in their offerings in selected cities. The second source of demand is as a substitution for meals prepared and consumed at home. Therefore, this research attempts to understand consumer behavior and their buying decision regarding the online food ordering through digital applications in order to provide appropriate marketing strategies for the online food ordering.

Customer Behaviors

Consumer behavior is defined as the study of how individuals, organizations and groups select, buy and make use of products, services, experiences or ideas to satisfy their need and wants (Kotler & Keller, 2012). Kotler and Keller's (2009) Consumer Behavior Theory was the main theory applied in developing the model explaining the consumer behavioral patterns in buying processed fish products in the present research. Other theories such as the Theory of Consumer Purchasing Behavior (Hawkins & Mothersbaugh, 2013); the Food Choice Theory (Sobal, Bissogni, Devine, & Jastran, 2006), Utility Theory (Perloff, 2009), and Incentive Theory (Myers, 1995) were also applied to supplement the purposed model. Customer behavior on online activity has been a shift in customer behavior with respect to activities, habitats and interactions. Due to the significant changes in the media environment, organizations have embraced digital marketing as a channel to engage with their consumers (Kumar et al., 2016). Furthermore, Shimizu [2] indicated that the consumer behavior is not one-way such as cognition-and-purchase of product or service, and information through reputation information sites. In digital marketing, understanding consumer behavior is key for marketing success as consumers have embraced utilizing the internet and online socializing tools (Vinerean, Cetina, Dumitrescu & Tichindelean, 2013). Being a new tool for interacting with consumers, organizations have to be cognizant of how social media has impacted consumer buying behavior (Rasool Madni, 2014).

Marketing Mix

Marketing Mix variables are the drivers of the revenue stream. Kotler (2005) states that the 4Ps model still provides a valuable framework for marketing planning. The main point beside selling and generating the revenue is that specific elements contained in the marketing mix should deliver more value, build a long-term and mutually profitability relationship with customers. McCarthy (1971) introduced the number of elements in the marketing mix to four basic ones and defines marketing mix as mix of four marketing variables (4Ps), namely, product, price, place, and promotion. Product considers both tangible (goods) and intangible (services) products which include services quality, service facilities, branding, packaging, standardization and grading. Price decisions affect both a firm's sales and profits, so price is always a consideration. Price is defined as any transaction in our modern economy can be thought of as an exchange of money- the money being the price- for something. The function of place is to match supply capabilities to the demands of the many target markets, moving goods wherever they are needed, including the factors that go into providing the time, and place, and possession utilities needed to satisfy target customers. Promotion considers that is communication between seller and buyer, including advertising, personal selling, sales promotion, tools of publicity, public relations, and various other forms of promotion. Promotion is vital, but not the only element of marketing strategy.

Customer Decision Making Process

Customers start searching information before making a decision to purchase product or service. Customers have evolved and no longer make purchasing decisions in a linear approach; they enter at various points, which are dependent on their first engagement with the brand, product research or word of mouth from their online society (Powers et al., 2012). The five-stage consumer decision making process was first introduced in 1910 by John Dewey (Bruner & Pomazal, 1988), and include: problem recognition, information search, evaluation of alternatives, purchase decision and post purchase behavior. Problem recognition is the situation when the consumers recognize their problems and what products to buy to solve these problems. When consumers are not satisfied with the product they have bought or the stored product has been used up or expired, the consumers will search for more information on the products, they will need to buy in the future. This condition complies with Kotler and Keller's (2009) and Hawkins and Mothersbaugh's (2013) found that recognition of problems of the consumer brings about their search for information on the product to be purchased. Recently, many consumers refer the product or service evaluations in reputation information (Cui, Lui , and Guo, 2012).

Research Methodology

The research design is drawn from quantitative research methodology. The survey is used to establish a baseline on the relationship between marketing mix and the online food ordering through digital applications in Thailand. The total sample for this study consists of 400 samplings. Descriptive, frequency, percentage distributions, means are used to describe and report the information collected affecting to individual variables and demographic information. Furthermore, the data obtained is analyzed by Stepwise Multiple Regression.

Results

A total of 400 usable questionnaires are obtained. The results show the distribution of usable responses by gender; consist of 197 males (49.25%), and 203 females (50.75%).

The respondent response by age; 22% report their age to be between 18 and 32; 31.25% report their age to be between 33 and 40; 25.5% report their age to be between 41 and 50; 12.75% report their age to be between 51 and 60; and 8.5% reports his/her age to be over 61.

The respondents report their average spending each time on the online food ordering each times, 9.5% report that the online food ordering each times is less than 100 baht; 25.75% report that the online food ordering each times are between 101 – 300 baht; 20% report the online food ordering each times are between 300 – 500 baht; 28% report that the online food ordering each times are between 500 – 1,000 baht; 13.5% report that the online food ordering each times are between 1,001 – 2,000 baht; and 3.25% report that the online food ordering each times are over 2,000 baht.

The results show the distribution of usable responses by the online food ordering frequency per month; 10.75% report that they purchase a product on the online food ordering once a month; 25.25% report that they purchase a product on the online food ordering 1 – 3 times a month; 43.5% report that they purchase a product on the online food ordering 4 – 6 times a month; and 20.5% report that they purchase a product on the online food ordering over 6 times a month.

The result presents the frequency of the main food and beverage category they order mostly; 34% report that they order mostly on food product category; 20.25% report that they order mostly on beverage category; 29.25% report that they order mostly on dessert product category; 16.5% report that they order mostly on snack category;

The result presents the frequency of the types of restaurant, 43.75% report that they order mostly from street food restaurant; 21.25% report that they order mostly from chain restaurant; and 35% report that they order mostly from standalone restaurant.

The result also presents the frequency of the primary online food ordering platform that respondents use. 23.75% report that they frequency visit and order is LINEMAN; followed by Food Panda (22%), Grab Food (19.25%), GET (15.75%), SKOOTAR (11%), Others (8.25%)

Table 1 shows the respondents are asked their opinion regarding product factor in marketing mix element that they have experienced in the online food ordering platforms. The most frequency endorsed responses is many seller and restaurants are available (mean = 4.21), followed by several menu and food categories are available (mean = 4.09), restaurant's reputations (mean = 4.03), and friendly application user interface (mean = 3.94).

Table 1 The Mean for Product Factor in Marketing Mix Element

Product	Mean	SD.	Ranking
Many sellers and restaurants are available	4.21	0.76	1
Several menu and food categories are available	4.09	0.73	2
Restaurant's reputations	4.03	0.64	3
Friendly application user interface	3.94	0.65	4
Average	**4.06**	**0.69**	

Table 2 shows the respondents are asked their opinion regarding price factor in marketing mix element that they have experienced in the online food ordering platforms. The most frequency endorsed responses is service charge and fee (delivery) (mean = 3.94), followed by cash on delivery is available (mean = 3.85), varieties of payment methods are available (mean = 3.77), and food and beverage price (mean = 3.74).

Table 2 The Mean for Price Factor in Marketing Mix Element

Price	Mean	SD.	Ranking
Service charge and fee	3.94	0.77	1
Cash on delivery is available	3.85	0.75	2
Varieties of payment methods are available	3.77	0.73	3
Food and beverage price	3.74	0.69	4
Average	**3.82**	**0.76**	

Table 3 shows the respondents are asked their opinion regarding place factor in marketing mix element that they have experienced in the online food ordering platforms. The most frequency endorsed responses is delivery area coverage (mean = 4.32), followed by 24/7 delivery service (mean = 4.30), providing the tracking system to track the order status (mean = 4.17), providing the tracking system to track the order status (mean = 3.66), and application is easy to access and navigate (mean = 3.84).

Table 3 The Mean for Place Factor in Marketing Mix Element

Place	Mean	SD.	Ranking
Delivery area coverage	4.32	0.78	1
24/7 delivery service	4.30	0.77	2
Providing the tracking system to track the order status	4.17	0.70	3
Application is easy to access and navigate	3.84	0.67	4
Average	**4.15**	**0.74**	

Table 4 shows the respondents are asked their opinion regarding promotion factor in marketing mix element that they have experienced in the online food ordering platforms. The most frequency endorsed responses is coupon code for extra discount (mean = 4.12), followed by flash deal for special promotion and events (mean = 3.85), notifications alert for new promotion (mean = 3.77), and having rewards points programs (mean = 3.51).

Table 4 The Mean for Promotion Factor in Marketing Mix Element

Promotion	Mean	SD.	Ranking
Coupon code for extra discount	4.12	0.74	1
Flash deal for special promotion and events	3.85	0.92	2
Notifications alert for new promotion	3.77	0.68	3
Having rewards points programs	3.51	0.77	4
Average	**3.81**	**0.76**	

Table 5 shows the respondents are asked their opinion regarding the customer purchase decision making through the online food ordering platforms. The most frequency endorsed responses is I have an intention to order food on digital application platform (mean = 4.04), followed by I prefer order food on digital application platform (mean = 4.02), I enjoy order food on digital application platform (mean = 3.86), and I recommend my friend to food on digital application platform (mean = 3.80).

Table 5 The Mean for online food ordering through the digital application platform

Food Ordering	Mean	SD.	Ranking
I have an intention to order food on digital application platform	4.04	0.77	1
I prefer order food on digital application platform	4.02	0.75	2
I enjoy order food on digital application platform	3.86	0.62	3
I recommend my friend to food on digital application platform	3.80	0.89	4
Average	**3.93**	**0.77**	

Table 6 shows the significance of each coefficient for each independent variable. It reveals that the predictor variables of product (β = 0.204, t = 4.735, P = 0.000), price (β = 0.243, t = 7.957, P = 0.000), place (β = 0.176, t = 5.387, P = 0.000), and promotion (β = 0.211, t = 2.282, P = 0.000) are achieved significance at the 0.05 level. Therefore, the regression equation for predicting the dependent variable from the independent variable is Customer Purchase Decision Making = 2.203 + 0.431(Product) + 0.362 (Price) + 0.527 (Place) + 0.324 (Promotion)

Table 6 The Relationship between Marketing Mix and Customer Purchase Decision Making

The Relationship between Marketing Mix and Food Ordering	**Regression Coefficient (b)**	**Standardized Coefficient (β)**	**t**	**P**
Product	0.431	0.204	4.735	0.000*
Price	0.362	0.243	7.957	0.000*
Place	0.527	0.176	5.387	0.000*
Promotion	0.324	0.211	2.282	0.000*
Constant (a)	2.203		7.997	0.000*
R = 0.791, R2 = 0.626, SEE = 0.290, F = 72.412, P = 0.000*				

*P < 0.01

Discussions and Recommendations

According to the finding, customers are willing to order food on digital application platform once the platforms have varieties of foods and beverages, and they can find the product of what they are interested. Customers explore the list of the restaurants and their menus in a specific area; therefore, the online food ordering platform should focus on their suppliers and vendors in order to cover all of the interests of their customers. Moreover, they should pay close attention on the developing the digital application platform interface, which are user interface (UI) / user experience (UX) significantly important to consider design elements as tools to guide the user into the user experience and make customer feel good not confused (Gutierrez, 2016). According to Worldpay (2012), they found that customers left the shopping website because the navigation on the website was too complicated. Furthermore, customer are looking for the channels meeting their conveniently life style. The customer has been experienced through the retail experience to expect more convenient options at the doorstep. They make the purchasing decision based on their convenience in term on locations, time, and process. Therefore, ordering and delivering service are particularly important that the online food ordering platforms. They have to pay attention on the customer behaviors and insights into behavior providing a managerial basis for improving the value of the product or service. Thus, the unexpected experiences of online purchasing may impact on future purchases. Good customer service can increase personal and business purchases. Yulisetiarini, Subagio, Paramu, and Irawan (2017) found that service quality is a crucial factor that interpreted the customers' effort to fulfill the needs and wants. Therefore, the recommendations are suggested as the followings:

1. Online food ordering platforms should design their applications based on user experience, and user interface, significantly concerning on user friendly design. Moreover, The content (pictures and description of goods) is one of the main components of marketplace effective conversion process. It helps a customer to go through a conversion funnel conveniently and make a purchase.

2. To improve better service, and be more sustained in the industry, the logistics is onone of the significant factors need to be concerned. Online food ordering platforms provider should encourage partnerships along with the logistic players can help overcome these challenges.

3. Online food ordering platforms which are providing services need a high level of trust to encourage customers to participate, usually pay even more attention to its suppliers' identity verification control. They should well manage on exclusive suppliers and vendors. The effective vendor management strategy will be benefits and being a marketplace's main competitive advantage.

4. Online customers are looking for much more convenience tools and channels;, therefore, online food ordering platforms should establish an understanding of the unique needs and characteristics of their customer targeted in order to match their needs with a unique offer that will convince them to use the service on the platform.

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FACTORS ENABLING THE DIGITAL CHANGE ON DIGITAL TRANSFORMATION FOR SMALL AND MEDIUM BUSINESSES

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ABSTRACT

The purpose of this research is to study the factors affecting the digital change which significantly lead to the digital business transformation. The research design is designed as a quantitative research. Structural equation modeling (SEM) is used to analyze the survey responses. Using SEM is to specify, test, and modify the measurement model. The results of measurement model analysis and path model analysis are presented. The data set of 400 samples are collected. The results of structural path analysis indicate that there are the effects among digital infrastructure, digital disruption, and digital change. Furthermore, there is significant and positive relationship between digital change and digital business transformation.

Keywords: Digital Infrastructure, Digital Disruption, Digital Change, Digital Business Transformation

Introduction

The digital economy rises to a number of new business models recently from traditional business to modern advances in technological involvement that have made it possible to conduct many types of business at outstanding greater scale and over longer distances than was previously. The digital economy allows the rapid development of new business models; it can also quickly cause existing businesses to become obsolete.

Thailand 4.0 is based on value-based economy, integrated by digital technology and innovation. It became crucial for the new economy era. Digital technologies are used to transform business operations in order to improve effectiveness, efficiency, productivity, and service delivery (Easley and Kleinberg, 2010). One of the crucial of Thailand 4.0 model is to help Thai to adapt to global competitive pressures by increasing the technological base through the development and integration of enabling innovation, and digital technologies (Languepin, 2016). The digitalization of a growing number of new business opportunities, including new types of products and services is huge access to crowd-sourced. The economic in many local markets are quickly disappearing and giving huge advantages to the best product, service or process in the market. Competition in markets is typically based on innovation rather than price, resulting in high opportunities in the market; with serving quickly being displaced by more successful innovators. Moreover, the growths of the technology, especially the digital economy and the revolution of business processes have transformed a new interest in the digital business development and business strategy. Therefore, the study will provide an empirical approach for investigating this phenomenon, while creating knowledge that will contribute to a deeper understanding of digital transformation. Furthermore, it may provide a framework for corporate strategic planners with meaningful technological considerations to integrate into their business strategies. One of the crucial of Thailand 4.0 model is to help Thai industries in every sectors such as agriculture, SMEs, and services, to adapt to global competitive pressures by increasing the technological base through the development and integration of enabling innovation, and digital technologies. Furthermore, the developing must be sustainable growth and development, in order to achieve economic growth and sustainable development without destroying the environment. Therefore, the research objective is to focus on the factors affecting the digital transformation of small and medium businesses.

Digital Infrastructure

Digital economy has been addressed for a significant method to transform a new way of doing business. Digital economy is generally defined as being the use of digital technologies to transform business operations in order to improve effectiveness, efficiency, productivity, and service delivery (Easley and Kleinberg, 2010). Thai government has established the DE policy to offer citizens and businesses the opportunity to complete a vast array of related transactions through many channels; i.e., Electronic-Procurement (e-Procurement), Electronic-Auction (e-Auction), and Electronic-Taxation system (e-Taxation).

Typically, the digital economy involves with five parts of infrastructure, including hardware infrastructure, software infrastructure, service infrastructure, promotion and innovation, and society and knowledge (Boonnoon, 2014). Hardware infrastructure refers to information-technology infrastructure that is used to support a digital economy such as high speed broadband Internet, and digital gateways. Software infrastructure refers to online channels, online transactions such as verification systems to identify individuals online and cyber-security in order to boost up e-Commerce transactions. Service infrastructure would create a platform to support the private sector, while the promotion and innovation part is the developing the digital skills of entrepreneurs to improve their productivity and workflow process efficiency through the supply chain, which will utilize digital tools and go along with banking system, services and manufacturing. Society and knowledge refers to the universal access ability, which allows people various online channels with an affordable price. The integration of activities at various levels generates the value that make specific business models profitable (Boonnoon, 2014).

The increasing recognition of the role of digital economy, which is enable the interactions among consumers, and suppliers as an important co-value creation has derived the implications of these interactions in numerous settings, including online activities. Digital economy is growing rapidly and frequently features comments about brands and products. Moreover, consumers increasingly rely on and are interested in collaborations (Cheong & Morrison, 2008). New business models have emerged demonstrating common features – mobility, use of data to generate value and network effects.

Digital Disruption

Digital disruption was possible because of a convergence, or the timely occurrence, of three key factors are technology, intelligence, and customer expectations. Advances in technology, especially surrounding mobile, data analytics, and Cloud computing, seemed to flourish overnight and dramatically affected the overhead required for businesses to launch, reach their customers, and collect the data necessary to tailor their new customer-centric business models around existing paradigms (Kollmorgen, 2017). The digital company has been gathering data from its digital shopping experience across all of their platforms since its inception. Artificial intelligence is used to track customer behaviors, and identify exactly where shoppers are on their purchasing journeys and target them with products accordingly. Lastly, the change in consumer expectations is likely a result of advances in technology and data analytics, but it is also the single most powerful influencer of digital disruption. Society quickly learned to value the experiences associated with the purchasing of products and services. In some cases, we have also demonstrated we are willing to pay more for premium experiences and some customer segments, namely Millennials, appear willing to pay for an experience over a product.

Digital Change

Organizational transformations succeed at improving a company's performance and sustaining those gains, the latest results find that the success rate of digital transformations is lower. These characteristics fall into five categories: leadership, capability building, empowering workers, upgrading tools, and communication (Boutetière, Montagner, and Reich, 2018). To develop talent and skills throughout the organization are a fundamental action for traditional transformations which one of the most important factors for success in a digital change effort. Another key is giving employees a say on where digitization could and should be adopted. When employees generate their own ideas about where digitization might support the business. Furthermore, digitizing tools and processes can support success. We asked respondents about seven structural changes their organizations had made since the transformations began. Lastly, results suggest that when communicating change stories, successful organizations tend to relay a richer story than others do. The elements with the greatest influence on success are clear targets for organizations' key performance indicators and clear communication of the transformation's timeline. These categories suggest where and how companies can start to improve their chances of successfully making digital changes to their business. Additionally, the adoption of technologies plays an important role across digital transformations. The organizations with successful transformations use more sophisticated technologies, such as artificial intelligence, the Internet of Things, and advanced neural machine-learning techniques.

Digital Transformation

Typically, digital economy specifically helps businesses mitigate the isolation inherent to most online data analysis activities. Furthermore, it is an online community-based e-commerce platform that brings together products from a vast array of stores into one digital platform. The types of business expand to several varieties of e-commerce, app stores, online advertising, cloud computing, participative networked platforms, high speed trading, and online payment services. Moreover, the growing of the digital technology in the business field has heightened demand for new big data being used for business intelligence. The increasing recognition of the role of digital economy, which is enable the interactions among consumers, and suppliers as an important co-value creation has derived the implications of these interactions in numerous settings, including online activities. Digital economy is growing rapidly and frequently features comments about brands and products. Moreover, consumers increasingly rely on and are interested in collaborations (Cheong & Morrison, 2008). New business models have emerged demonstrating common features – mobility, use of data to generate value and network effects. Digital technologies increase competitive advantage for the economy; this is likely to be global in scale, given that geographical barriers are becoming increasingly irrelevant. Therefore, the businesses that are embracing the digital business trend to craft their transformation stages are required to focus and develop the key business transformations as a digital transformation strategy, which are mobility, value of data, social commerce effect, and new business model (Harvard Business Review Analytic Services, 2015). Mobility is enabling new business scenarios (Harvard The development of a core contributor to value creation and economic growth for companies in the digital economy. Businesses are increasingly able to carry on commercial activities remotely while traveling across borders, removing geographically from both the locations in which the operations are carried out and the locations in which their suppliers or customers are located. Value of Data as big data effect is a crucial part on the value of the data-driven marketing economy and the revenues generated for the economy. The business uses the big data to obtain and analyze data, and big data in particular, is increasingly well documented by market observers, and used to develop new products and services. Digital Commerce is becoming a core aspect of modern digital marketing strategies, and they see potential for it to radically transform the marketing function. This helps to confirm and increase their purchase decisions. It is more likely to have friend collaborative buying experience. New Business Models is developed by data input and resources such as customer information, and customers' online behavior allows businesses gaining an asset in business models where the different sides of the market can be created then dynamically adapted based on evolving technology, the latest expression of consumer demand, and a firm's position on the market, resulting in innovative new business models, products, and services.

Research Methodology

The research design is drawn from quantitative research methodology. The survey is used to establish a baseline on the study. The total sample for this study consists of 400 SMEs. Descriptive, frequency, percentage distributions, means are used to describe and report the information collected affecting to individual variables and demographic information. Furthermore, structural equation modeling is used to analyze the survey responses. Using SEM, it is to specify, test, and modify the measurement model. Model-data fit is evaluated based on multiple fit indexes.

Results

Table 1 shows that SMEs agree that they are ready for the infrastructure; including hardware infrastructure (mean = 3.89), software infrastructure (mean = 4.01), process infrastructure (mean = 4.04), and service infrastructure (mean = 3.97).

Table 1 Means, Standard Deviations, and Median Response with Items for Digital Infrastructure

Digital Infrastructure	Mean	SD.
Hardware Infrastructure	3.89	0.95
Software Infrastructure	4.01	0.67
Process Infrastructure	4.04	0.81
Service Infrastructure	3.97	0.94

Table 2 shows that the SMEs believed that their businesses are being disrupted and affected by technology and innovation (mean = 4.13), artificial intelligence (mean = 3.62), and customer expectation (mean = 4.17).

Table 2 Means, Standard Deviations, and Median Response with Items for Digital Disruption

Digital Disruption	Mean	SD.
Technology and Innovation	4.13	0.68
Artificial Intelligence	3.62	0.79
Customer Expectation	4.17	0.74

Table 3 shows that the SMEs is planning and preparing their business by creating digital strategy (mean = 4.02). They informed the significant important of the digital skill of their workforce (mean = 4.07), they change the working operation to digital procurement (mean = 4.09), and they invested more on digital tools for daily working (mean = 4.15). Respondents agree that their business needs to be transformed to mobility (mean = 4.26), they also viewed that digital skill is significant important (mean = 4.07), digital procurement (mean = 4.09), and digital tools (mean = 4.15).

Table 3 Means, Standard Deviations, and Median Response with Items for Digital Change

Digital Change	Mean	SD.
Digital Strategy	4.02	0.71
Digital Skill	4.07	0.77
Digital Procurement	4.09	0.74
Digital Tools	4.15	0.66

Furthermore, Table 4 shows the SMEs is planning and preparing their business by creating digital strategy (mean = 4.02). They informed the significant important of the digital skill of their workforce (mean = 4.07), they change the working operation to digital procurement (mean = 4.09), and they invested more on digital tools for daily working (mean = 4.15). Respondents agree that their business needs to be transformed to mobility (mean = 4.26), they also viewed that digital skill is significant important (mean = 4.07), digital procurement (mean = 4.09), and digital tools (mean = 4.15).

Table 4 Means, Standard Deviations, and Median Response with Items for Digital Transformation

Digital Business Transformation	**Mean**	**SD.**
Mobility	4.26	0.74
Value of the Data	4.14	0.66
Digital Commerce	4.22	0.68
Digital Business Model Platform	4.05	0.82

According to Table 5, the results exhibit that all the measurements have significant loadings to their corresponding construct. Overall, the model has a satisfactory fit with GFI = 0.954, AGFI = 0.931, NFI = 0.927, IFI = 0.944, CFI = 0.925, and RMSR = 0.031. Those are all very good, which is representing a reasonable model-data fit. Therefore, the model fix indexes for the path model indicated an acceptable approximation of the proposed relationship among the constructs and the results should be interpreted meaningfully.

Table 5 The Results of Adjusted Model Fit Index

Chi-Square	**P-Value**	**CMIN/DF**	**GFI**	**AGFI**	**NFI**	**IFI**	**CFI**	**RMSEA**
93.741	0.000	2.577	0.954	0.931	0.927	0.944	0.925	0.031

Table 6 shows the testing which are reported in terms of z-value (Critical Ratio) at the level of significance of 0.05 or lower. All construct relationships are found to be positive. The results suggest that there is a significant relationship between digital infrastructure and digital change ($p < 0.01$) as the direction of the relationship is positive as the study proposed. The results show a significant relationship between digital disruption ($p < 0.01$). This indicates that digital disruption has a positively influence the change in terms of digital strategy, digital skill, digital procurement, and digital tools. Additionally, the results show a significant relationship between business change and digital business transformation ($p < 0.01$).

Among the significant relationships, the standardized coefficients are 2.217 (digital infrastructure to digital change), 2.031 (digital disruption to digital change), and 1.729 (digital change to digital business transformation). The paths represent directly link in the proposed model. It can be concluded that effective digital business transformation will greatly lead to improve digital business transformation.

Table 6 Estimates of Regression Weights

			Estimate	S.E.	C.R.	P	Label
Digital Change	<---	Digital Infrastructure	2.217	1.012	2.322	0.00**	par_10
Digital Change	<---	Digital Disruption	2.031	1.107	2.527	0.00**	par_11
Digital Business Transformation	<---	Digital Change	1.729	0.971	2.018	0.00**	par_12

Note: * shows p-value < 0.05 ** shows p-value < 0.01

Discussions and Recommendations

As the finding, there are the direct effects among digital infrastructure and digital disruption and digital change. Generally, the efficiency, whereby ventures can utilize digital business through highly scalable infrastructure. According to Boutetière, Montagner, and Reich (2018) found that develop talent and skills throughout the organization are a fundamental action for traditional transformations which one of the most important factors for success in a digital change effort. Digital transformation is involved in the long-term success coming from the executives and employees understanding the opportunities of digital that provides and giving them the tools to successfully drive initiatives forward. Since the data found the relationship between a digital readiness and the strategic execution. to understand their ability to respond. Therefore, digital business transformation starts with an understanding of how the organization works now and identifying internal change as well as opportunities for a better innovation culture. Therefore, the adoption of technologies plays an important role across digital transformations. Furthermore, the digital change successfully completed is on digital strategy as well. Schumacher, Erol, Sihn (2016) found that the business value derived from integrating this perspective into the company's general strategy. Duperein (2014) pointed that a digital strategy impacts the learning and growth perspective in balanced scorecard model in term of human, information and organization capital, which these factors have to be leveraged by business processes. Therefore, from the executives and employees understanding the opportunities of digital that provides and giving them the tools to successfully drive initiatives forward (Ortowski, Ziokowski, Paciorkiewicz, 2017). Therefore, the recommendations are suggested as the followings:

1. The ability to digitally reimagine the business is determined in large part by a clear digital strategy supported by leaders who foster a culture able to change and invent the new. Companies should build understanding regarding digital transformation starts with how the organization works now and identifying internal change as well as opportunities for a better innovation culture.

2. Beside internal factor focusing, to use digital technology and develop it into the business strategies and new business models in order to listen to and better understand customer sentiment about products, brands, and companies as a whole, by Increased data volume could affect data integration and analytical capabilities, thus impacting big data maturity.

3. The business that pursue successful transformations should focus more sophisticated technologies, such as artificial intelligence, the Internet of Things, and advanced neural machine-learning techniques. They should be able utilize a data and information, consisting of a group of statisticians, technologists and business subject matter experts, to collectively solve problems and provide solutions.

4. To develop talent and skills throughout the organization are a fundamental action for traditional transformations which one of the most important factors for success in a digital change effort**.** The businesses should change job descriptions, relocate employees to other departments, and/or implement incentive programs designed to motivate employees to provide suggestions, receive education or training, and/or gain tenure through continued employment, required to support the value creating internal processes**.**

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SUGAR INTAKE AND BITTER TASTE IN THAI ADULTS

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ABSTRACT

6-*n*-Propylthiouracil (PROP) is bitter compound that blind to the T2R38 receptor also which individual taste blind. Sweet taste has a similar taste receptor in protein and conjugate compounds as bitter taste. Acceptability of bitter taste can effect on sweet preference and sugar consumption. This study aim to investigate effect of 6-n-Propylthiouracil taste (PROP) to sweet preference and sugar intake in healthy Thai adults. Two hundred and thirty-four healthy adults who were 18- 45 years of aged were classified PROP status by filter paper disk with concentration of 32 mM for separate to three group. Sweet preference were test by NaCl solution (0.01, 0.032, 0.1, 0.32 and 1.0 mole/L) and sucrose solution (0.058, 0.12, 0.23, 0.47, and 0.93 mole/L). Dietary intake were assess by three day dietary food record. Anthropometric assessment were measure body composition in this group. Descriptive statistic were presented as median (interquartile range) for continuous variables and frequency (percentage) for categories variables. The participated comprised of 68 men and 166 women with median age of 21 years old. Participated were non-taster (n=128, 54.7%), medium taster (n=97, 41.5%), and super taster (n=9, 3.8%). Difference were compared by Mann-Whitney U test. Results showed that no significant between PROP status (p=0.839) and sugar intake but significant on gender between men and women (p-value=0.037). No difference between sweet preference and sugar consumption in each intensity rate. In conclusion, PROP bitter taste no effect on sugar intake and sweet preference but non-taster were significantly higher consume cholesterol than super taster (p=0.048). Other factors might be more related to food consumption and food preference. Dietary intake in this group trend to consume more sugar when compared Thai Dietary Reference Intake (DRI). It can predict trend for health status and need to prevent in excessive sugar intake that is risk factor identified as major determines of NCDs in Thai population.

Keywords: 6-*n*-Propylthiouracil (PROP)**,** Bitter taste**,** Sweet Preference, Sugar intake

Introduction

Taste is a sensory system that acts to distinguish the type of food and directly affects the choice or acceptability of food as well as difference in food consumption and type of food [1]. It will determine the likelihood and habits of food consumption [2]. The ability to taste, including bitter taste, sweet taste, sour taste and salty taste effect on the behavior of food consumption [3]. Sweet taste has a similar mechanism of taste receptor cell to bitter taste. There is a similar taste receptor in protein and conjugate compounds of taste receptors [4]. Sensitivity to bitter taste affects the acceptance of bitter foods, food sources or bitter compound [5-7]. So it is possible that the genetic variation of the bitter taste gene affects to taste perception and it is also associated with the tongue bitterness of sugar sweeteners and sugar consumption [8] The difference in taste with the use of bitter taste perception by 6-*n*-Propylthiouracil (PROP taste) by the intensity of the bitter taste several study found that people who are acceptability to bitter taste (PROP) in non-taster, to eat a high energy, like sweet food [9], like bitter food compound [10], as well as fat food or fat products [11-14]. However, who sensitive to bitter taste or taster group do not like eating sweet [11] and avoid eating bitter foods such as cauliflower also associated with low dietary preference fir grapefruit juice [15]. Therefore, it might be that the bitter taste effect to food choices [5, 16-18]. So it is possible that the bitter taste might affect to sugar consumption [8]. Nowadays, there is little to know the studies to investigate association of bitter taste to sweet preference and sugar intake in Thai adults. The objective is to investigate effect of 6-n-Propylthiouracil taste (PROP taste) to sweet preference and sugar intake in Thai adult. This results will be useful as a basis to predict food selection and food consumption in Thai population.

Materials and methods

Study Population and Study Design

Two hundred and thirty-four adults (68 men and 166 women) were recruited in this study. Median (interquartile) of age was 21.0 (19.0-25.0) years old. All participated were healthy, no recent illness, and no congenital disease. They were no food allergy, no smoking, and no taking medicine that affecting the taste perception (e.g., Anti-anxiety agents. anti-bacterials and anti-fungals, antide-pressants, antiepileptic drugs, antihypertensive and cardiac drugs, antihistamines and decongestants, anti-inflammatory agents, anti-migraine agents, anti-parkinsonian drugs, anti-psychotics, antiviral agents, bronchodilators, smoking cessation aids, and thyroid drugs) [19]. The participated who was pregnancy and had dental disease including caries [20] were exclude in this study.

A cross sectional design was used in this study. The participated enrolled from Mahidol University, Salaya Campus Thailand. Inform written consent obtained from all participated. The study approved by the Mahidol University Central Institutional Review Board (MU-CIRB) MU-CIRB 2018/036.0502

Anthropometric assessment

Anthropometric assessment were measure height, body weight, and body composition. Body height (using a stadiometer), waist circumference (using a tape measure), Body weight and body composition (using Bioelectrical Impedance Analysis; Omron Karada Scan body composition monitor HBF-375,LOT: 201612, OMRON HEALTHCARE Co.,Ltd. Made in China) for each individual were measured in the morning between 8.00-11.00 a.m. Participated requested to wear light cloths before coming to the measurement session. Body mass index were calculated as weight in kilograms divided by height in meter squared [21]. Base on BMI, the participated were classified into 4 groups: underweight (<18.5 kg/m^2), normal weight (18.5-22.9 kg/m^2), overweight (23-24.9 kg/m^2), and obesity (>25 kg/m^2) [22]. All information were recorded in general information form.

Dietary assessment

The participated were got three days dietary food record form for record dietary intake (breakfast, lunch, snacks and dinner) that used to measure energy and nutrients intake. The three days dietary food record consist of two workday or regular day and one day of weekend or day off. All participated were trained instruction until understand content clearly by researcher before record in the form by themselves. They were recorded and estimated of food items by used measuring tools (measuring spoons and cup, a half of hand, or any shape). Dietary data were assessed by using INMUCAL-Nutrients version 3 developed by Institute of Nutrition, Mahidol University for data analysis.

Sensory test Perception

Bitter taste perception: the participated were instructed to avoid eating or drinking anything except water 2 hours prior to the taste [20, 23]. PROP taste status of the subjects were determined as filter paper disk PROP taste with concentration of 32 mM (Nasco PCT paper strips, USA) Before test, the participated were instructed to rinse their mouth with distilled water and place the PROP paper strip (32 mM) [24] on the tip of their tongue for 30 seconds [20, 23] or until the disk was completely wet with in their saliva and then spit it in to a trash can. They were asked to rate the intensity of the taste using a sensory taste form to classified participated into 3 groups including super-taster, medium-taster and non-taster group by using Labeled Magnitude Scale (LMS) with rating 0-100 mm, with descriptors of "barely detected" to "weak" to "moderate" to "strong" to "very strong" and "strongest imaginable" for test participated who can intensity of bitter taste perception that effect from receptor of bitter gene perception. If subjects rated the PROP taste $\leq$ 16.5 mm they were classified as a "non-taster". Those who rated the PROP taste $\geq$ 67 mm were classified as "super-taster", as well as medium-taster fell in between [24].

Sweet taste perception: The procedure was separated two part for salt taste and sucrose solution taste. Each participated was instructed to avoid eating or drinking anything except water 2 hours prior to the taste [23]. Salt taste perception test by NaCl solution for taste normal perception in each subject. Before test, subjects were instructed to rinse their mouth with warm water 2-3 time. Then, participated will present with solution in NaCl five concentration including 0.01, 0.032, 0.1, 0.32 and 1.0 mole/L [25]. All samples will give three-digit number [26] and the position of NaCl solution sample are randomly allocated. They tasted 10 ml of each solution by sip the solution, scrub all over the mouth, and then spit it out in to a trash can. The participated were asked to rinse their mouth with warm water between each concentration step. They did the same method in next solution and each participated rated levels of solution and rate the flavors of salty taste from the fewest salty samples to the most salty ones also writing NaCl solution that the participated preference salty taste the most one. The researcher was explain the details to the participated to understand the recording process before test. Then rinse with warm water again. Leave for about 1 minute and start testing the sucrose solution. Sweet taste perception test by sucrose solution five concentration as 0.058, 0.12, 0.23, 0.47, and 0.93 mole/L [25]. They did the same procedure. Then, they rated the level of sweet preference that give a feeling of sweet taste on sensory test form (Just about like) also writing sucrose solution that make participated were feel preference of sweet taste the most one. All participated were appointment for taste perception as sensory room, Institute of Nutrition, Mahidol University.

Statistical Analysis

All statistical analyses were conducted using SPSS Statistics software package version 19.0 (IBM Corp., Armonk, NY, USA). Descriptive statistic were presented as median (interquartile range) for continuous variables and frequency (percentage) for categories variables. Demographic data were analyzed difference between men and women by Mann-whitney U test and the Chi-square test to evaluate for test of independence between groups.

Mann-Whitney U test was examined to comparing of median (interquartile range) for continuous variables and analyzed difference dietary intake between men and women. Each paired of PROP status (non-taster vs super taster, non-taster vs medium taster, and medium taster vs super taster) was compared difference by Mann-Whitney U test as well.

Independence test for sweet preference and gender were presented as number of subject and percentage between men and women. Chi-square test were tested for evaluate difference in sweet preference in intensity rate. Sugar consumption in each intensity were presented as number of subject and sugar consumption were presented as median (interquartile range). Comparing difference in each intensity by Mann-Whitney U test. A confidence interval of 95% was adopted for all test. A two-side *p*-value < 0.05 was considered statistical significant.

Results

Demographic Characteristics

A total two hundred and thirty-four Thai adult, aged 18-45years old with median age of 21, participated in this study. As shown in Table 1. The participated comprised of 68 men and 166 women. The PROP status separated into 3 group as non-taster, medium taster, and super taster. For men, most of participated are non- taster (n=38, 55.9%), medium taster (n=28, 41.2%), and super taster (n=2, 2.9%) respectively. For women, most of participated are non- taster (n=90, 54.2%), medium taster (n=69, 41.6%), and super taster (n=7, 4.2%) respectively. Not difference in PROP taster status between men and women (p-value= 0.891).

The body composition or anthropometrics data between men and women, all parameter were significant as *p*-value < 0.01. Both group difference in body composition. In this study, Men higher in fat composition and less in muscle composition parameters than women .The fat composition parameters are weight, body mass index, waist circumference, visceral fat, and all percentage subcutaneous fat. Base on body mass index, men have overweight (24.3 kg/m^2) while women have normal weight (21.4 kg/m^2). As shown Table1.

Sugar intake

Amount of sugar consumption per day was presented by median (interquartile range). This study found significant difference between men and women *p*-value < 0.05 (*p*=0.037) .In this group intake sugar 63.0 (36.0-

100) gram/day. For men intake sugar 54.0 (28.8-92.0) grams/day while women have sugar intake 69.0 (41.8-102.5) grams/day that shown in Table 2. Women intake sugar higher than men as 27 % of amount of sugar intake per day. When compare sugar intake as PROP status by Mann- Whitney U test, the result found that not significant in PROP status as p-value > 0.05 (p= 0.839) in Table 3. However, super taster have trend to consume more sugar than medium taster and non-taster. The median (interquartile range) of sugar intake were super taster consume sugar 68.0 (34.5-83.5) grams/day, medium taster 64.0 (39.5-100), and non-taster 62.0 (34.3-103.5) grams/day respectively. World Health Organization (WHO) recommendation sugar intake per day should be consume less than 10 percent of total energy intake such as energy intake 2,000 kcal/day, amount of sugar intake should be less than 50 grams or 10 spoon/day. According to the American Heart Association (AHA) recommended sugar intake per day for men should be less than 37.5 grams or 9 teaspoon and women 25 grams or 6 teaspoon per day [27, 28]. Recommendation for sugar intake from Department of Health, Ministry of Public health should less than 6 teaspoon/ day [29]. As mention before, this result shown Thai adult consume more sugar intake than recommendation. It maybe effect to health status in the future.

Dietary intake

Dietary intake of both gender presented in Table 2 reported from three days dietary food record as median (interquartile range). All parameters were difference between men and women significant as p-value <0.05 except carbohydrate (g) (p=0.153), saturated fat (mg) (p= 0.060), and sodium (mg) (p=0.094) by Mann-Whitney U test. When compared dietary intake in both gender this study found that men higher consume in energy intake (kcal), protein (g), fat (g), saturated fat (g), Cholesterol (mg), and sodium (mg) than women.

All parameter of dietary intake were compared difference by Mann-Whitney U test. Compare as non-taster and medium taster, non-taster and super taster, also medium taster and super taster. According to PROP status that shown in Table3 .When compare between non-taster and super taster, this result found that non-taster were significantly higher consume cholesterol than super taster as p- value <0.05 (p=0.048). Non-taster consumed 416.0 (273.3-555.0) mg/day while super taster consumed 257.0 (122.0-404.5) mg/day. Almost all parameters, there were no differences in dietary intake between groups but this study found non-taster consume more energy intake 2,142.5 (1,687.0-2, 6302.0) kcal/day than medium taster 2,070.1 (1,799.0-2,498.0) kcal/day, and super taster 1,721 (1,549.0-2,349.5) kcal/day. Sodium intake, non-taster consume more than other group that were intake 3,884.0 (3,040.0-5,010.3) mg/day. High protein intake were found in medium taster consumed as 88.0 (70.-106.0) gram/day.

Table 1 Subject characteristics

Subject characteristics				
Parameters	**All subjects** (n=234)	**Men** (n=68)	**Women** (n=166)	***P-value*** *sig p<0.05*
PROP status				
-Non taster	128 (54.7)	38 (55.9)	90 (54.2)	0.891
-Medium taster	97 (41.5)	28 (41.2)	69 (41.6)	
-Super taster	9 (3.8)	2 (2.9)	7 (4.2)	
Age (y)	21.0 (19.0-25.0)	22.0 (19.0-25.0)	21.0 (19.0-25.0)	0.631
Weight (kg)	57.7 (49.2-69.1)	70.4 (63.3-81.0)	54.1 (47.3-61.7)	<0.01
Height (cm)	162.0 (157.0-167.0)	170.0 (166.0-175.0)	159.0 (156.0-163.2)	<0.01
BMI (kg/m^2)	22.2 (19.3-25.0)	24.3 (21.5-26.8)	21.4 (18.9-24.1)	<0.01
Waist circumference (cm)	74.5 (68.0-85.3)	83.5 (76.0-92.9)	72.0 (66.7-79.2)	<0.01
Visceral fat (%)	3.5 (1.6-7.0)	7.0 (4.5-10.0)	3.0 (1.5-4.8)	<0.01
Skeleton muscle (%)				
- Whole	20.95 (16.23-25.90)	15.05 (10.18-16.93)	23.40 (19.50-27.43)	<0.01
- Trunk	17.4 (13.6-22.1)	13.5 (8.9-15.5)	19.2 (15.6-23.4)	<0.01
- Arms	35.9 (24.5-42.0)	20.6 (15.0-22.3)	38.6 (33.9-43.4)	<0.01
- Legs	31.7 (23.8-37.5)	20.4 (14.2-21.9)	34.2 (30.3-39.5)	<0.01
Subcutaneous fat (%)				
- Whole	28.3 (26.1-31.9)	34.2 (32.3-36.9)	27.2 (25.6-28.7)	<0.01
- trunk	23.3 (20.6-26.1)	27.5 (25.2-31.5)	22.1 (20.2-23.9)	<0.01
- Arms	38.86 ± 5.07	29.70 ± 5.48	32.37 ± 6.79	<0.01
- Legs	40.7 (38.5-49.1)	51.5 (49.7-54.3)	39.6 (37.9-41.0)	<0.01

Data shown as median (interquartile rang). Difference were compare by Mann -Whitney U test. Significant as p value <0.05.

Sweet Preference

The correlation between sweet preference and gender showed in Table 4. This study presented as percentage of subjects separated into men and women also concentration of sucrose. Pearson Chi-Square statistic was used to explain correlation in both groups. The statistical significant as *p*- value < 0.05. The result founded no correlation between sweet preference and gender (*p*- value= 0.814). Most of men (n=34, 50%) and women (n=74, 44%) rating to sucrose intensity as 0.023 M that was a medium range of sweet intensity.

Sweet preference and PROP taste presented as median value in Figure1. There were no significant between sweet preference and PROP taste scale to compare each intensity with lowest one . The statistical significant as *p*- value < 0.05 by Mann -Whitney U test. No difference between PROP taste scale in each intensity rate that compared as intensity rate 0.058M and 0.23M (*p*- value= 0.943), 0.058M and 0.47M (*p*- value= 0.935), 0.058M and 0.12M (*p*- value= 0.513), as well as 0.058M and 0.93M (*p*- value= 0.521). As the result, intensity of sucrose no effect to PROP taste scale.

Difference of sweet preference and sugar intake showed as Figure 2.This study used Mann -Whitney U test significant as *p*- value < 0.05. Sucrose preference presented as concentration intensity and sugar intake presented median value. When compare difference in each intensity with lowest one. The result found that no difference sugar consume that compared as intensity rate 0.058M and 0.23M (*p*- value= 0.559), 0.058M and 0.47M (*p*- value= 0.594), 0.058M and 0.12M (*p*- value= 0.843), as well as 0.058M and 0.93M (*p*- value= 0.803). As the result sweet intensity rate no effect to sugar intake.

Table 2 Dietary intake per day and gender

Parameters	Dietary intake (Three days dietary record) per day			
	All subjects (n=234)	**Men** (n=68)	**Women** (n=166)	***P-value*** *sig p<0.05*
Energy (kcal)	2,087.0 (1,733.8-2,552.3)	2,344.0 (1,923.0-2,671.8)	2,001.0 (1,668.3-2,352.0)	<0.01
Carbohydrate (g)	264.5 (210.8-324.3)	286.5 (225.3-334.3)	261.0 (207.3-320.8)	0.153
Sugar (g)	63.0 (36.0-100.0)	54.0 (28.8-92.0)	69.0 (41.8-102.5)	0.037
Protein (g)	83.0 (69.0-107.0)	94.5 (82.0-136.5)	78.0 (67.0-100.0)	<0.01
Fat (g)	71 (56.8-92.0)	82.0 (65.0-100.0)	67.0 (52.0-87.0)	<0.01
Saturated fat (g)	18.0 (13.0-26.0)	22.0 (14.3-28.8)	17.0 (12.8-25.3)	0.060
Cholesterol (mg)	400.5 (245.0-528.8)	479.5 (341.3-734.8)	365.0 (234.0-492.8)	<0.01
Sodium (mg)	3,629.0 (2,874.3-4,752.3)	3,972.0 (3,043.0-5,279.5)	3,604.5 (2,856.3-4,526.0)	0.094

Data shown as median (interquartile rang). Difference between group were compare by Mann-Whitney U test. Different letters indicate significantly different values (p ≤ 0.05).

Table 3 Dietary intake per day and PROP taster status

Parameters	**All taster (n=234)**	**Non taster (n=128)**	**Medium taster (n=97)**	**Super taster (n=9)**
Energy (kcal)	2,087.0 (1,733.8-2,552.3)	2,142.5 (1,687.0-2632.0)	2,070.0 (1,799.0-2,498.0)	1,721.0 (1,549.0-2,349.5)
Carbohydrate (g)	264.5 (210.8-324.3)	271.5 (208.3-334.5)	264.0 (223.5-320.5)	232.0 (207.5-292.0)
Sugar (g)	63.0 (36.0-100.0)	62.0 (34.3-103.5)	64.0 (39.5-100.0)	68.0 (34.5-83.5)
Protein (g)	83.0 (69.0-107.0)	83.5 (69.3-109.0)	88.0 (70.0-106.0)	70.0 (65.0-82.5)
Fat (g)	71 (56.8-92.0)	71.0 (56.0-91.8)	73.0 (57.5-92.5)	63.0 (54.5-89.0)
Saturated fat (g)	18.0 (13.0-26.0)	18.0 (13.0-26.8)	18.0 (13.0-26.0)	19.0 (13.5-21.5)
Cholesterol (mg)	400.5 (245.0-528.8)	416.0 (273.3-555.0)[a]	374.0 (227.0-530.5)	257.0 (122.0-404.5)[b]
Sodium (mg)	3,629.0 (2,874.3-4,752.3)	3,884.0 (3,040.0-5,010.3)	3,431.0 (2,824.0-4,86.5)	3,431.0 (2,824.0-4,86.5)

Data is shown as median (interquartile range). Differences between non-taster vs super taster, non-taster vs medium taster, and medium vs super taster were compared by Mann -Whitney U test. Different letters indicate significantly different values (p ≤ 0.05).

Table 4 Percentage of sweet preference and gender

Sucrose Preference			
Intensity	**Men** (n=68), (*n*, %)	**Women (%)** (n=166), (*n*, %)	***P-value*** *sig p<0.05*
0.058 M	3 (4.4)	12 (7.2)	0.814
0.12 M	15 (22.1)	34 (20.5)	
0.23 M	34 (50.0)	73 (44.0)	
0.47 M	13 (19.1)	40 (24.1)	
0.93 M	3 (4.4)	7 (4.2)	

Number of participated and percentage were presented, Pearson Chi-Square significant as p -value < 0.05

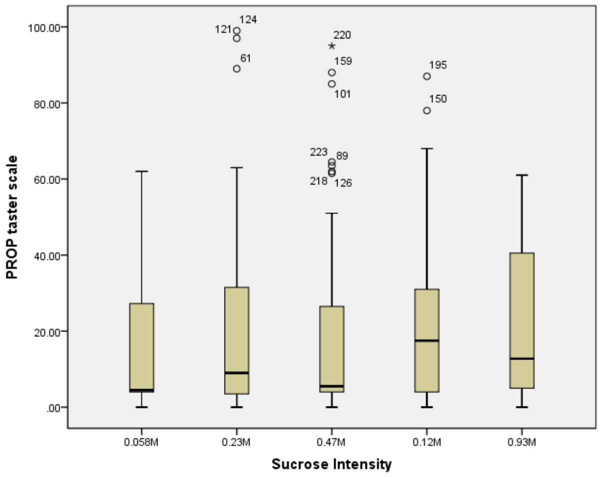

Figure 1 Sweet preference and PROP taste

Differences between 0.058M vs 0.12M, 0.058M vs 0.23M, 0.058M vs 0.47M, and 0.058 vs 0.93M were compared by Mann -Whitney U test. * Significantly different values ($p \leq 0.05$).

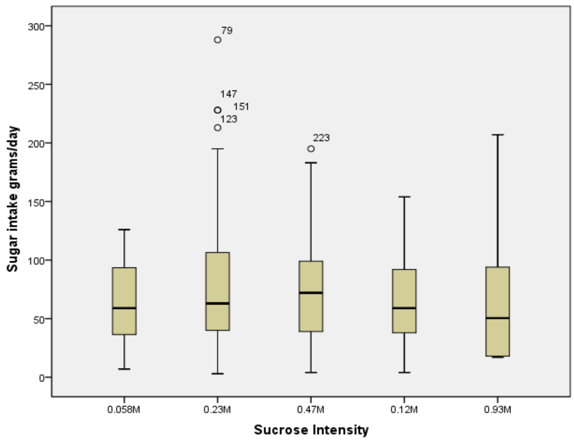

Figure 2 Sugar intake and sweet preference

Differences between 0.058M vs 0.12M, 0.058M vs 0.23M, 0.058M vs 0.47M, and 0.058 vs 0.93M were compared by Mann -Whitney U test. * Significantly different values ($p \leq 0.05$).

Discussion

In 2013, a total 71% of the 5 hundred thousand in Thai population deaths cause from NCDs. The main diseases are cardiovascular disease (29% of total deaths), cancer (17% of total deaths), chronic respiratory disease (9% of total deaths), and diabetes mellitus (4% of total deaths). Behavioral risk factors for NCDs are tobacco use, insufficient physical activity, harmful use of alcohol and unhealthy diet [30]. The dietary intake status have been identified as major determines of NCDs such as high energy food, fat, also sugar intake related to obesity and diabetic mellitus that need to learn and reduce causes of NCDs for solving this problem. Thai adults consume over sugar intake, the results showed median (interquartile range) of sugar intake sugar 63.0 (36.0-100) gram/day. International Sugar Organization (ISO) found that Thai population consumed sugar 39 kg/person/day or about 21 teaspoon/day in 2010 [25]. Recommendation for sugar intake from Department of Health, Ministry of Public health should less than 6 teaspoon/day these information suggest to Thai population consumed more sugar intake than recommendation which is associated with increasing non-communicable disease (NCD) in Thai population [29].

The PROP phenotype is a marker to bitter taste perception that important to dietary intake, nutritional and health status. It can effect to food preference and food consumption [31]. Several studies investigated PROP taste and sweet food selection. Keller et al., 2014 studied that PROP taste status correlated with sweetness consumed in children so they needs to confirm that children who are sensitive to PROP had more frequency sweet intake. The report found that the children who had taster status consumed more sweet food than who had non-taster status [8]. In contrast data**,** Nayak and Rupesh report that non-taster were sweet likers and preference strong tasting food, whereas taster were sweet dislikers and preference weak taste [7]. Some study was no difference between taster and non-taster group such as Wijtzes et al., 2016 study the association of 6-n-propylthiouracil (PROP) taster status or sensitivity to PROP with food consumption and food preference of sweet beverages and high-calories snacks among 6-year-old ethnically diverse children. [32]

This study investigated effect of PROP taste scale and sugar intake. The result founded no significant between PROP taste scale and sugar intake (*p*- value= 0.489). Shafaie et al., 2013 found that non-taster and medium taster status consumed more energy and fat (as percentage of energy) from buffet setting than super taster ($P<0.01$), as well as consumed more added fats, sweets, and more energy from snacks[13]. Choi et al., 2015 according to PROP status, non-taster were significantly on higher BMI, energy intake, as well as fat intake than medium and super taster [17]. Previous studies were found non-taster consume high fat but not showed difference in detail as type of fat. This study showed non-taster were significant higher consumed cholesterol than super taster but not significant for fat and saturated fat. Almost dietary parameter found consume more in non-taster group except sugar intake found consume more in super taster 68.0 (34.5-83.5) grams/day same some previous study and more protein intake found in medium taster 88.0 (70.-106.0) gram/day. Association between sweet preference and sugar consumption that founded no difference sugar intake between sweet intensity and sugar consumption.

In conclusion, this study not founded association between PROP status and sugar intake but the result showed differences in cholesterol intake between non- taster and super taster. This study founded dietary consumption is unhealthy pattern diet as all parameters over amount consume than Thai Dietary Reference Intake (DRI). It can predict trend for health status and increasing non-communicable disease (NCD) in Thai population. Other factors might be more relating to food consumption and food preference than taste sensitivity such as family, parents, and food environment [33]. Future study need to confirm PROP status and dietary intake in more participated in each PROP status that is limitation in this study. Amount of sugar consumption in Thai adults should be worry and need to prevent in excessive sugar intake that is risk factor identified as major determines of NCDs.

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