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Game Design to Improve Thai Speaking Skills for Chinese Students

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Games make learners fun and eager to participate in the learning process. This research study was to improve the Thai speaking skills of Chinese students. The objectives were to design a game-based learning activity (GBL) and to study the developmental effects of Thai speaking skills after the activity experiment. Repeated-measures experimental design was used in this research by using game-based learning and collected scores on the Thai speaking in test 3 times and homework assignment 6 times. The researcher studied 80 Chinese students in the first year of a bachelor's degree in the Faculty of Foreign Languages at Baise University. The research tool consisted of 1) the GBL activity plan and 2) the rubric assessment criteria. The assessment of Thai speaking skills was divided into 2 areas: a) scores of test and b) scores of homework assignment. Content analysis, mean, standard deviation, and repeated measurement were used to analyse the data. The result of the research showed that the GBL activity design included both practical homework and sticker-based classroom games. The learning goals were to pronounce Thai consonants and words correctly and to construct sentences correctly. After the experimental activity, it was found that Chinese students had a statistically significant increase in their Thai speaking skills.

Keywords: virtual simulation, web-based application, multimedia, teaching, learning

INTRODUCTION

Thai language is very important in Guangxi Province because Guangxi of China, is like a gateway to ASEAN. Chinese people in Guangxi are more interested in learning foreign languages, including Thai. The number of investments from Guangxi to invest in Thailand is second only to Singapore (Liao & Wang, 2016). Although the investment value in Thailand is not much, Thailand has the advantage of being closer to the province of Guangxi. This made many Chinese students in Guangxi become interested in learning Thai. And many universities in Guangxi Province offer Thai language

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teaching courses, such as Guangxi University, Guangxi Normal University, Guangxi University for Nationality, Baise University, Guilin University, etc. However, learning Thai speaking skills among Chinese students is still a problem.

Speaking skills are one of the communication language skills that consist of listening, speaking, reading, and writing. 70% of language teachers recognised the importance of speaking skills in communication, and 52% of teachers agreed that the classroom environment was important to the development of speaking (Maheswari and Chandra Bose, 2018). To ensure that Chinese students' practise of speaking foreign languages, such as English, was effective, teachers should teach students not to be shy, reduce student anxiety by creating a warm environment, and use multimedia technology to facilitate and motivate students (San, Ni Ni; Kyi, Yin Yin, 2018). However, previous research on Chinese students' English learning found that students had high levels of anxiety in their speaking, a lack of confidence, and negative attitudes towards learning foreign languages (Chou, 2018; He, 2017). Chinese students who begin to learn Japanese will lack enthusiasm, but when they have a vision and perspective on their own development, they can improve their Japanese language learning (Gao & Lv, 2018). In addition, problems in using Thai language by foreigners include unclear pronunciation of consonants, lengthening vowel sounds, and not saying "Ka" and "Krab" at the end (Kupongsak, 2012). Therefore, it is important to find ways or strategies to solve problems relating to Thai language speaking for Chinese students.

Several empirical studies found that playing games such as role play that helped create imagination and flash cards with pictures could help Chinese students understand and improve their communication skills (Wu- Yuin Hwanga, Timothy K. Shihb, Zhao-Heng Mab, Rustam Shadievc and Shu-Yu Chenb,2016; Bagus Putra Krisdiana, Enny Irawati,2018). In addition, much other research found that teachers could improve students' speaking skills through virtual video-based learning through games (Jennifer Ann Foote, Pavel Trofimovich, Laura Collins & Fernanda Soler, 2016 ; Wu- Yuin Hwanga, Timothy K. Shihb, Zhao-Heng Mab, Rustam Shadievc and Shu-Yu Chenb, 2016). Game-based learning has developed an interest in using it to improve the speaking skills of Chinese students.

Game-based Learning (GBL) is the use of playing games to create a learning process that is effective for teaching foreign languages. A study by Franciosi (2017) examined the effects of game-based learning on Japanese universities' ability to learn and communicate in foreign languages by testing vocabulary memorization. The results showed that GBL helped students learn and communicate in foreign languages. Research by Hwang et al. (2016) who developed mobile games found that playing mobile games made Chinese learners practice speaking a foreign language more often and with a better thought process for contemplation of language. They could also make sentences to communicate more accurately and confidently. In addition, a study by Stiller and Schworm (2019) that divided students into two groups: 1) the technology-based group and 2) the game-based group, showed GBL was an effective tool for educating and enhancing English language skills for non-native learners by affecting motivation and interest in learning. This would be more useful than a group of students

who mainly used technology. In this research, GBL was applied to Chinese students at Baise University, Guangxi Province, where students had varying levels of readiness towards technology. Therefore, this research designed games without using technology because the availability of technology would be a major obstacle in the development of Chinese students' foreign language speaking skills.

It is very interesting to develop the Thai speaking skills of Chinese students using GBL, because Chinese students are naturally anxious about learning a foreign language, and GBL can help to make it fun and reduce anxiety. What does the GBL to improve the Thai speaking skills of Chinese students look like? This research studied the design of GBL for teaching speaking Thai. The experiment was conducted with first-year Chinese undergraduate students at Baise University, Guangxi Province, China, who had never learned the Thai language before. The findings would be a guideline for improving Thai speaking skills for students and language teachers. Moreover, it would be a guideline for the design of the GBL to develop teaching techniques that would be more effective as well.

Research Objectives

1. Design the GBL activities to teach Thai speaking to Chinese undergraduates.

2. Study the results of the development of the Thai speaking skills of both male and female Chinese undergraduate students after implementing GBL activities.

Literature Review

Definition and outcomes of game-based learning

Pho and Dinscore (2015) studied definitions and overviews of Game-Based Learning (GBL) and found that GBL referred to the application of some gaming principles to create psychologically-based learning to motivate learners to be more involved in learning. It was not just bringing games for learners to play; it was a design of learning by adapting the concepts along with the game development to meet the learning objectives.

GBL enhanced foreign language skills and made them enjoyable for learners. It also affected the mood and created challenges for learners (Ke, Xie and Xie, 2016). Learners were willing or motivated to learn. They had fun while playing games because playing games could help manage negative emotions in learners very well (Abdul Jabbar and Felicia, 2015; Reinders and Wattana, 2015). Fun games could engage, stimulate, and create good social experiences for learners. The study found that although the game had a time limit of 30 seconds, most students answered it within the first 3 seconds, meaning that students were able to analyse their answers. Moreover, learners were significantly less irritable than before (Wang and Hoang, 2017). Fun games were positively correlated with deep learning and comprehensive thinking. Learners were able to think and have more fun with language exchange (Butler, 2015; Crocco, Offenholley and Hernandez, 2016). Games also increase the ability to manage. Learners learned how to understand the content (Abdul Jabbar and Felicia, 2015), and enhanced their vocabulary and language structure (Berns et al., 2016).

Design GBL activities for practicing speaking skills in foreign languages

Six sub-skills to be considered when practising foreign language speaking skills are: 1) ability to practise imitation and pronunciation; 2) language pronunciation and grammar practice; 3) reactions related to a limited level of comprehension, such as a short conversation or salutation; 4) communication for the purpose of exchanging specific information; 5) using conversation to foster social relationships; and 6) oral presentations in the form of stories or brief speeches (Ihsan, 2018).

Shi and Shih (2015) studied game factors and game-based learning styles to present the concept of game-based learning design. From the literature review, it was found that the factors for designing game-based learning were game goals, game mechanisms, game fantasy, sensation, game value, challenges, and sociality. Game design requires a thought process and material design to match the game, as shown in Picture 1. Therefore, in the design, it is necessary to begin by defining the goals of the game and the teaching objectives or experience that the players want to gain. In game design, it is necessary to evaluate the game in order to meet the goals set.

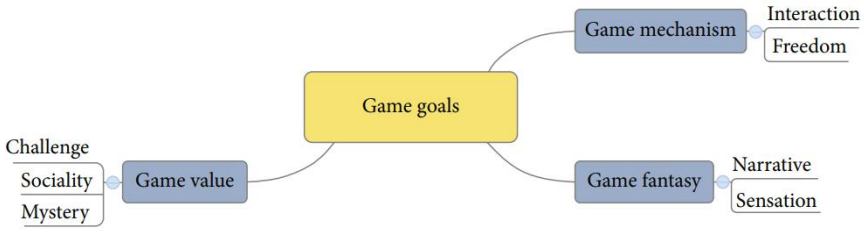


Figure 1
Factors for designing game-based learning
Source: Shi and Shih (2015)

Games to promote learning foreign languages (FL) started with 1) understanding learners' learning perspectives; 2) allowing students to exchange vocabulary within the classroom; 3) allowing students to think about and enjoy the process of learning more languages; and 4) creating appropriate games so that students can create stories on their own, emphasising design that presents challenges and best meets the needs of students (Butler, 2015). Lessons must be adapted to real-life situations to make it more interesting to develop foreign language communication skills (Yukselturk, Altıok and Baser, 2018). Teachers should motivate students to play games and understand learners' emotions arising from participation while playing games (Ke, Xie and Xie, 2016). The researcher therefore formulated the research hypothesis as follows:

Hypothesis: Game-based learning activities affected Chinese students' speaking skills development.

METHOD

Repeated-measures experimental design was used in this research. When starting to use game-based learning, researchers tested and collected scores on the speaking Thai language skills of Chinese students periodically throughout the semester.

Population and sampling

The population was Chinese students in the first year of the Department of Thai Language at Baise University, with four sections totalling 163 students. I used a cluster sampling 2 from 4 sections who enrolled in a Thai speaking level one course with a researcher who was also a teacher. The students from 2 sections were unable to select a teacher, so it was automatically considered random. The eighty sample students were 6 males and 74 females.

Measurement

GBL activities for Chinese students meant playing games to improve their speaking Thai language skills in a way that suited the personalities of Chinese students who lacked confidence and had anxiety. To make students want to participate in learning to improve their Thai speaking, I used Shi and Shih (2015) concepts and student interviewing to frame the design of game-based learning in three areas: 1) game mechanism 2) game fantasy 3) game value. The GBL activity plan's content validity was checked by two experts who had experience in teaching the Thai language to Chinese students for a minimum of five years, and one expert who had experience in teaching foreign languages using games for a minimum of five years. As the experimental activity went, I created a manipulation check to make sure the activity was really going according to plan.

Thai speaking skills were referred to as pronunciation for comprehension and the ability to form short sentences. Based on Ihsan's first three skills (2018), the introductory Thai speaking skills were rated by the rubrics criteria. The content validity test was also conducted by three experts and rated in two ways:

1. Scores of the test (pre-test, mid-test, and post-test: weeks 1, 6, and 12). The researcher created the test situation by asking Chinese students to randomly select 5 images of 44 Thai consonants and 2 images of 5 verbs, which included running, eating, walking, sleeping, and traveling. After that, the students were asked to speak Thai sentences related to the 7 pictures they selected. Then the researcher graded them with a rubric score in three areas: 1) clear pronunciation, 2) fluency, and 3) proficiency of speech sentences (details in the appendix). After scoring with the rubric criteria, I have adjusted my score to a full score of 10.

2. Scores from homework assignment (every other week). The researcher gave different words and had students practise speaking and recording them as homework. The researchers graded with the same rubric criteria, but only two areas were assessed: 1) clear pronunciation, and 2) fluency (details in the appendix). After scoring with the rubric criteria, I have adjusted my score to a full score of 10

Data collection and analysis

The researcher collected the data from the students in the researcher's own class by explaining the research objectives and obtaining consent from the students before conducting the research. Data analysis to answer the research objective one used content analysis with the following steps: 1) define the categories of analysis, 2) develop a set of coding, 3) Code the text, and 4) analyse the results and draw conclusions. Whereas the

data analysis to answer the research objective two used mean, standard deviation, line graph, and the hypothesis were tested using repeated measure ANOVA.

FINDINGS

The results of the research to answer the two research objectives were presented as follows:

The design of game-based learning activities

The 12-week learning activities consisted of: 1) practice homework, 2) group games, and 3) individual games. The game used stickers as an attractive reward. The learning goals were divided into 3 time periods as follows: 1) the pronunciation of 44 Thai consonants in weeks 1-3; 2) the pronunciation of mono and compound vowels with 2 sentences containing only nouns and verbs in weeks 4-9; and 3) constructing sentences with extensions in weeks 10-12. Details as shown in Table 1

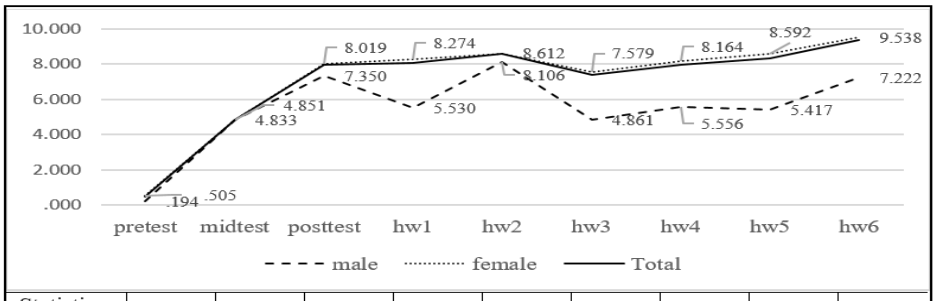
Table 1
Plans for GBL activities throughout the semester in the Thai speaking course

Week	Practice homework	Group games	Individual game
1-3	Students were asked to record a clip of their own pronunciation of Kor kai to Hor Nok Huk and send it via e-mail.	The teacher listened to the students pronounce five consonants at a time by listening to each group. If any group did not pronounce it correctly, they were deemed defeated and were asked to repeat it again.	The teacher showed the picture of all 44 consonants in front of the classroom, randomly selected the student ID, and asked the student to select any consonant to pronounce it. If they could pronounce it correctly, they would get one sticker. The consonants that students pronounced correctly wouldn't be selected again. Then the teacher continued randomly selecting IDs and asked for one volunteer who would be given five stickers after reading all 44 consonants.
4-9	The teacher provided students with an audio-based PowerPoint. Homework included practicing pronouncing words, constructing sentences, recording, and sending it by email.	The teacher listened to the students pronounce four sets of words at a time. If any group did not pronounce the words correctly, they were deemed defeated and were asked to do it again. The teacher selected the group with the clearest pronunciation to get the entire group of stickers that change every week.	The teacher showed pictures of all 44 consonants in front of the classroom as well as five pictures of verbs, and asked for volunteers who would receive stickers if they could construct a sentence. In the last week, when students were able to construct more sentences, the first person who volunteered would be the first to choose a princess sticker. The next person would receive a normal sticker.
10-12	The teacher gave students an audio PowerPoint. Homework included constructing sentences , recording voices, and sending them by e-mail	The teacher listened to the students pronounce. By listening to each group, if any group did not pronounce it clearly, they were deemed defeated and were asked to do it again. The teacher selected the group with the clearest pronunciation to get the entire group of stickers. The researchers changed the sticker style every week.	The teacher showed pictures of all 44 consonants in front of the classroom as well as five pictures of verbs, and asked for volunteers who would receive stickers if they were able to construct sentences with extensions. In Week 12, students were asked to construct sentences from all of their own stickers. The criteria for determining the winner were based on the number of stickers and the number of sentences created.

Source: Authors

Results of the development of the Thai speaking skills of Chinese students

All 80 Chinese students (solid line) had a noticeable increase in their test scores, with a score of 4.369 increased in the mid-test and a score of 3.119 increased in the post-test. Six male students (dashed line) and seventy-four female students (dotted line) had a slight difference in their pre-test and mid-test scores of 0.311 and 0.018, respectively, except for the post-test score, on which female students had a higher score of 0.669 than the male students (Figure 2).



Statistics	pre	mid	post	hw1	hw2	hw3	hw4	hw5	hw6
Mean	0.481	4.850	7.969	8.068	8.574	7.375	7.969	8.354	9.365
S.D.	0.287	1.379	1.017	1.544	1.735	1.828	2.186	1.980	1.603

Figure 2
Thai speaking skills test scores (pre, mid, and post) and homework scores (hw1-hw6)
Source: Authors

When considering homework scores, Chinese students, who were mostly female, had scores above 8 since the first two homework assignments were the pronunciation practice of consonants, whereas male students had a low score (5.530) on the first homework and improved on the second homework (8.106). When changing homework to the pronunciation of words, female students scored lower and were able to score more on the 4th and 5th assignments. On the 6th assignment of constructing sentences, female students continued to perform better. The male students had the same score development but had lower scores on the 3rd–6th homework than the females, accounting for 55.91%, 46.94%, 58.61%, and 32.07%.

Hypothesis testing of the game-based learning activities affected the development of Thai speaking skills in Chinese students by using Wilk's Lambda to test the score of pre-test, mid-test, and post-test. The results of the assumption test of repeated measurements showed that the residual covariance matrix was not proportional to an identity matrix (Bartlett's Test of Spericity = 148.545, P < .01). At least on one test, the Thai speaking skills of Chinese students were statistically significantly different (Wilks' Lamda = 0.016, F = 2449.033, P < .01). The results of pairwise comparisons showed that the mid-test and post-test scores were statistically significantly increased (P < 0.05) (as shown in Table 2).

Table 2
multivariate statistic and pairwise comparison

Statistic	Value	F	df	P	η^2
Wilks' Lambda	.016	2449.033*	2.000	.000	.984

					95% Confidence Interval	
(I) factor1	(J) factor1	(I) – (J)	S.E.	P	Lower Bound	Upper Bound
pretest	midtest	-4.369*	.149	.000	-4.733	-4.004
	posttest	-7.487*	.119	.000	-7.778	-7.197
midtest	pretest	4.369*	.149	.000	4.004	4.733
	posttest	-3.119*	.194	.000	-3.592	-2.645

Source: Authors

DISCUSSION AND SUGGESTIONS

Discussion and suggestions presented the findings as follows:

1. A game design that rewards stickers and has assignments/homework methods that can motivate students' speaking practice:

1.1 Fantasy: Most of the reward stickers in the game were shiny pearls with a special prize sticker in the shape of a princess. These awards are very attractive to most students who are female.

1.2 Mechanism: Assigning both individual tasks and group tasks is game-like. Group games created interaction between friends and teachers, whereas individual games created freedom for students to show their abilities to the fullest.

1.3 Game Value: Games were challenging both in terms of social groups and with regard to mystery. Students were part of a team; they didn't want to lose, and in terms of mystery, the teacher always told students to collect their own stickers, as in the last week, there would be a special game to play without telling them what game it was.

from the above three factors They correspond to the GBL elements according to Shi and Shih (2015) who explain that successful learning games must be valuable, fantasy, and mechanical.

Therefore, teachers should incorporate games into learning activities by taking into account both the fun and the learning development of learners. Games that are too difficult will cause the learner to become stressed and unwilling to play. The games that are too easy will allow the learners to develop as appropriate. The sequence of steps in the game should start from easy to difficult.

2. Reasons for the lowest scores on the 3rd homework and the difference in scores between males and females. The research found that the 3rd homework score was the lowest (after which it continued to increase) because the 3rd homework was an important turning point where students began to learn structures and practice pronouncing “words” while where homework 1 and 2 are for consonant pronunciation only. This explanation is consistent with Ihsan (2018), who described sound imitation

and grammar as skills that must be considered when practicing speaking a foreign language.

The results also showed that female students had higher homework scores than male students. There is research that has found the cause. It was found that women were more talkative than men. On average, women spoke 16,215 words per day, while men spoke about 15,669 words per day (Mehl, et al., 2007).

Therefore, foreign language teachers still need to pay special attention to male students.

3. The development of the Thai-speaking skills of Chinese students using GBL had three important factors:

3.1 The enjoyment gained from playing games, particularly group games with friends, would encourage Chinese students to try not to let their group lose. Even when they lost, they would laugh at their common mistakes. I have observed these behaviours happening while playing games which was in accordance with the GBL principles that made learning enjoyable while playing games (Ke, Xie and Xie, 2016; Abdul Jabbar and Felicia, 2015; Reinders and Wattana, 2015; Wang and Hoang, 2017; Butler, 2015; Crocco, Offenholley and Hernandez, 2016).

3.2 Practice before playing games. Chinese students practice pronunciation from homework assignments and PowerPoints a week ahead of playing games. Chinese students practiced in order to not be the ones causing their group to lose when playing games. I have observed these behaviours, which is to say that Chinese students are self-regulation. A research meta-analysis by Li et al. (2018) examined the influence of self-regulation on academic performance of Chinese students and found that the influence of attention focus, goal setting, integrated, metacognitive, self-efficacy, self-evaluation, task interest/value, and task strategies was 0.300 or higher.

3.3 There are similarities and differences in the pronunciation of consonants and vowels of the Mandarin and Thai sound systems. and although the tones are the same However, there are some Chinese words that are not in the Thai phonetic system (Cai & Lee, 2015). Chinese students' pronunciation practice of Thai words also encountered problems in pronouncing “R”, “L”, and some tonal pronunciations were incorrect, causing misinterpretations.

Therefore, for the development of Thai speaking skills, in addition to using games, the following are what teachers and/or learners should do:

1) Before playing games in the classroom, teachers should assign video clips or PowerPoint presentations to students to practise as homework. If students do not do their homework in advance, there should be compulsory measures such as grading homework that is part of the grade in that course.

2) Teachers should listen to the student's pronunciation by themselves. However, in order to save time and not burden the teachers too much, they should listen to no more than four people at a time, which is an amount that teachers can still distinguish the sounds of each person.

3) Teachers should create a learning atmosphere for students to dare to play games, for example, by trying to let students know that "every pronunciation has no mistakes and no shame". Teachers should play hard-to-pronounce points in the game and make the learners laugh. In addition, in order to bridge the gap between teachers and students, the researcher, as an instructor, asked students to call him "Sister" instead of the word "teacher," etc.

CONCLUSION

"Whoever plays games is always having fun." Games are therefore used in teaching and learning. This research, too, used games to improve Thai speaking skills among Chinese students by designing activities according to Shi and Shih (2015) GBL-based activities that had set learning goals and included game elements that consisted of game value, fantasy, and mechanism. The game to improve the Thai speaking skills of Chinese students aimed to enable students to pronounce Thai consonants, Thai words, and construct Thai sentences. Although Chinese students have difficulty pronouncing some Thai words, games can help turn the difficulty into fun. The game value developed by the researcher created challenges for students through team play. The games still had a mystery because students had to collect stickers to use in the final week of the game. The teacher did not say what the final game would look like, but only mentioned that "the person with the most stickers would have a chance to win in the last game." The game was fantasy-based in its selection of rewards to suit the majority of players, most of whom were female. The shiny pearls and princess stickers were used as rewards. The female college students were excited and liked it every time they received stickers. For one week, when it was changed to car stickers to make male students feel that they were also cared for, and being gentlemen, the male students agreed that the rewards of the games should be based on the preferences of their female peers in the classroom. Finally, the researchers created conditions for both group games and individual games as a mechanism of the game in order for group games to create interaction within the team and for individual games to create freedom for students to show their Thai speaking skills to the fullest extent. By teaching using the games mentioned above, the Thai speaking skills of both female and male Chinese students have greatly improved. Although the homework scores of male students were significantly lower than those of female students, the mid-test and post-test scores were still similar.

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APPENDIX

Table 4
Speaking skills assessment criteria

	Very good (3 scores(	Good (2 scores(	Adequate (1 score(	Below standard (0 score(
Clear pronunciation	Pronounce more than 80% correctly according to the accent of native speakers. No more than a 20% mistake.	Pronounce around 50-80% correctly according to the accent of native speakers. No more than half a mistake.	Pronounce around 20-50% correctly according to the accent of native speakers. More than half a mistake.	Unable to pronounce correctly, doesn't match the accent of a native speaker. More than an 80% mistake. Listeners misunderstand.
Fluency	Pronounce it fluently without hesitation.	Reluctance to pronounce, only for a moment, no more than 1-2 seconds, a little, no more than half of the total pronunciation.	Reluctance to pronounce, only for a few seconds, for no more than 1-2 seconds, mostly for more than half of the pronunciation.	Mostly pauses for more than 3 seconds.
Speaking in sentences.	Able to speak more than 3 sentences	Able to speak more than 2 sentences	Able to speak one sentence.	Unable to speak more than one sentence or unable to speak at all.