STUDENTS' PERCEPTIONS TOWARDS GAME-BASED

CHINESE LEARNING AMONG GRADE 11 STUDENTS

IN A THAI SCHOOL CONTEXT IN THAILAND

BY

LU CAI

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Abstract

This qualitative study explores "Students' Perceptions towards Game-Based Chinese Learning Among Grade 11 Students in a Thai School Context in Thailand". It aims to understand students' perceptions of game-based Chinese learning and the crucial ways to learn Chinese through games. The study was conducted in a school in Nonthaburi, Thailand. The participants in the study were students studying Chinese in Grade 11 at the school. Given the prevalent lack of motivation among these students, coupled with challenges in finding effective learning methods, this research endeavors to identify pedagogical approaches conducive to their learning needs. In the study, games such as Word Chain, Bingo, and Guess Who I Am were used in the classroom. After several classes, students provided feedback which was recorded. Data contains pre and post-interviews as well as the teacher's journals. The data analysis method was a content analysis. The analysis identified three types of students' perceptions and four beneficial ways of learning the Chinese language. The three perceptions include students being more interested and engaged in learning Chinese, increased self-confidence of the students, and improved Chinese learning efficiency of the students. The four beneficial ways are collaboration and working with partners, communication and sharing lessons learned with partners, active learning for gaining knowledge, and creating a meaningful language environment. This study then provides teaching strategies and ideas for Thai high school Chinese language teachers so that they can apply these strategies to teaching Chinese and boosting the professional learning community in their context.

(Total 81 pages)

Key Words: Game-Based Chinese Learning, Grade 11 students, Students' Perceptions

Student's Signature …....................................Thesis Advisor's Signature ....

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ABBREVIATIONS

Abbreviation	Meaning
GBL	Game-Based Chinese Learning
IOC	Item Objective Congruence

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The highly infectious Corona Virus Diseases 2019 (COVID-19) has had a deep impact on many institutions including higher education, public, and private school systems globally (Altbach, Reisberg & Rumbley, 2019). In response to the challenges posed by the pandemic, the Thai Ministry of Education has made several policy adjustments to accommodate changing educational needs. With the Thai Ministry of Education's approval of Chinese as a foreign language course for the university entrance examination, which stipulates that all university students majoring in humanities and social sciences can take Chinese as an option instead of other foreign languages (Worawiwat & Qian, 2019, p. 1), it poses higher demands and challenges to Chinese language teaching and learning strategies.

The teaching of the Chinese language applies several strategies. One is using games to motivate students to learn and enjoy their learning. According to Wang (2013, p.1082), there is no better motivator for learning than a student's intrinsic interest in what they are learning, and there is nothing better than games to stimulate this intrinsic interest (Habgood & Ainsworth, 2011, p.170). The most important benefit of using games in foreign language teaching is that they create a 'relaxed, preferential and cooperative atmosphere' (Al-Bulushi & Al-Issa, 2017, p.180). Games can enable students to make meaningful connections between new and existing knowledge (Yang et al., 2021, p.1060), and in this classroom atmosphere, they increase learners' interest in learning, while reviewing the language they have learned and using it to communicate, thus achieving the effectiveness of foreign language teaching (Jiang, Chen, Lu, & Wang, 2021). The integration of games into teaching and learning allows students to change from passive to active learning and promotes the development of

students listening and speaking skills (Hwang, Shih, Ma, Shadiev, & Chen, 2016, p.647) as well as meeting the training objectives of oral communication.

When I taught Thai high school students, I found they were lively and enthusiastic. Some of them could also communicate with me in Chinese mixed with Thai and body language. However, my students were not very motivated to learn and were not able to participate actively in class. That is why at the beginning, they were not in Chinese. Based on my experience above, I tried to find ways to motivate them.

According to Wang (2013, p. 1083), games are an effective teaching tool that motivates language learners, regulates learners' emotions during the learning process, reduces anxiety and relieves stress, and makes it easier for students to learn and master language input. For teachers, games help to complete teaching tasks and improve the quality of classroom learning (Kangas, Koskinen, & Krokfors, 2017, p.455). Therefore, incorporating games into teaching may be able to motivate these students to learn and allow them to absorb and review their knowledge during a relaxing game.

Based on the above information, I focus on "Students' Perceptions Towards Game-Based Chinese Learning Among Grade 11 Students in a Thai School Context in Thailand". Through my teaching design, experiments, data collection, data analysis, and reflection, I will search find the teaching methods suitable for Thai Grade 11 students.

1.2 STATEMENT OF THE PROBLEMS

Two problems in my school led me to conduct this research. The problems are below:

First, the students lack the motivation to learn, Li (2009, p.94) also says that students can easily become resistant. Therefore, in the process of language teaching, it is important not only to equip students with the necessary knowledge but also to develop their interest in learning and a sense of learning achievement. Integrating the

characteristics of Thai students who are lively and active, with strong hands-on skills and a strong sense of teamwork (Shi, 2021, p.13), game-based learning is applied to the high school Chinese classroom to quickly heat the classroom atmosphere through games. Under the influence of rich and interesting classroom games, the perception of Chinese as a lively and interesting subject is formed in students' minds and they can maintain this interest and awareness of learning for a long time, thus becoming favorable factors for foreign language learners. Sustaining these potential factors will also contribute to teachers' future Chinese language teaching (Zheng, 2019, p.9).

Based on my experience, I used traditional classroom teaching methods with Thai high school students. They were easily distracted, drowsy, and disinterested in what they were learning. Students with lively personalities are constantly walking around in class, looking around, constantly looking for someone to talk to, and are constantly moving around in class. Students with quiet personalities tend to drift off and write assignments for other subjects. Students who are particularly negative about their studies, even sleeping on their desks and completely ignoring me.

The second is the students' lack of Chinese learning ways. In contrast to English, which is reinforced by the media, popular culture, and extensive use daily, students' exposure to Chinese is limited. In addition to the Chinese classroom, many students do not understand how to learn Chinese outside of it, which leads to a serious disconnect between theoretical learning and practical application of Chinese. Students do not have a Chinese language communication environment, and many of them will lose interest in learning Chinese because they are unable to express Chinese effectively and find it difficult to gain the self-confidence needed to use Chinese effectively.

In sum, two problems encourage me to find the solutions. I hope that this study can help me to understand and work more effectively in teaching the Chinese language, and also provide practical teaching and theoretical references for Chinese language teachers at the high school level in Thailand.

1.3 SIGNIFICANCE OF THE STUDY

Game-based learning is widely used in educational methodologies in many fields, and the foreign language classroom is one of them (İnce, 2021, p.9761). Game is a way of consolidating and enriching students' knowledge through language games, which can be used to review or elicit language knowledge and apply it to real-life communicative situations (Zhu & Liang, 2008, p.87), keeping students interested and competitive in the game, subtly absorbing knowledge, enlivening the classroom atmosphere, completing the teaching content and enhancing the (Wang, 2000, p.20). According to Han (2009, p.16), based on the motivational, fun, and timely feedback characteristics of the game learning approach, students enjoy the process of playing the game, as well as competing to combine a priori knowledge with new information or concepts, and allowing the teacher to instantly understand the reactions of everyone involved and get immediate feedback from students.

Based on these reasons, game-based learning seems to be a very useful teaching method that stimulates students' interest in learning, enhances their motivation, and allows them to participate actively in teaching activities so that they can acquire and review knowledge naturally and remember it for a long time to achieve the best possible learning results.

Considering the background of the students I am studying and the value of the project work, game-based learning will improve students' Chinese language skills and motivate them to learn Chinese. This study can help to better meet the needs of students. It can also be used to understand the potential benefits of integrating games into the teaching and learning process and to inform teaching strategies for Chinese language teachers at the high school level in Thailand. In addition, it can facilitate further research on Chinese language teaching strategies.

1.4 STUDY CONTEXT

The school I conduct this study is Papaya School (pseudonym). This is a program with 482 students and 42 teachers at the high school level, including 10 foreign teachers. There are three classes: General Class, Bilingual (English & Thai) Class, and Asia (English-Chinese-Thai trilingual) Class. There is one Asia class for each grade, and Chinese is a compulsory subject. Students in Asia classes are chosen randomly upon admission, thus some of them have low interest in the language.

The population in this study are Grade 11 students in the same trilingual class at this school in Nonthaburi, Thailand. It is the only class that applies to this program, and I am their Chinese teacher. In my class, there are 21 students. Their ages vary from 16-17. 8 students volunteered to be my research participants. Among them, there are 3 girls and 5 boys.

Based on the design of the school program and the background of the students, my research project is significant. Through this study, I hope to know more about the needs and characteristics of my students. Then I can adjust my teaching to meet their needs. It will also help me to discover and work more effectively in the teaching of the Chinese language, as well as provide practical teaching materials and theoretical references for Chinese language teachers at the high school level in Thailand.

1.5 OBJECTIVES OF THE STUDY

The objectives of this study are:

1.5.1 to find the students' perceptions toward game-based Chinese learning.

1.5.2 to find ways students in this study benefit their Chinese learning.

1.6 RESEARCH QUESTIONS

There are two research questions in this study:

1.6.1 What are the students' perceptions of game-based Chinese learning?

1.6.2 In what ways do games benefit students' Chinese learning?

1.7 SCOPE OF THE STUDY

The scope of this study covers the following information:

1.7.1 Methodology

Qualitative methodology is a type of study designed to collect and analyze non-numerical (descriptive) data to understand the social reality of individuals, including understanding their attitudes, beliefs, and motivations (Elizabeth & Clair, 2022). Qualitative methodology often attempts to retain the voices and perspectives of participants and allows for flexibility to adapt as new research questions arise (Guest, Namey, & Mitchell, 2013).

In this study, I used qualitative research methodology to look for the answers to two questions.

1.7.2 Participants

The study participants were 8 Grade 11 grade students from Papaya School(pseudonym). Among them, there are 3 girls and 5 boys. Their ages vary from 16-17. They are studying Chinese lessons in the first semester of the 2023 academic year. They can master basic Chinese vocabulary and sentences, and they can communicate in simple Chinese.

1.7.3 Data Collection

The data collection consisted of pre-interview, post-interview, and teacher's journals. During the first week of the project, pre-interviews were conducted to understand students' perceptions of the Chinese language and games, which helped to design and conduct the project in a more focused manner. During this period, the teacher's journals were recorded weekly. After three months, post-interviews were conducted to find out what students gained from the project as well as their perceptions.

1.7.3.1 Interview

Interviews are a typical research method in which researchers attempt to obtain information from respondents and learn about their experiences, opinions, attitudes, or values (Gray, 2014). A generally accepted typology distinguishes between structured, semi-structured, and unstructured interviews (Robson & McCartan, 2016). Thomas (2009) mentioned that "semi-structured interviews offer the best of both worlds as far as interviews are concerned, combining a list of questions that should be discussed in a structured manner with the freedom to follow up as needed ". The semi-structured feature allows for in-depth views and opinions, which is desirable for interviewees to expand their responses (Gray, 2014).

Two semi-structured interviews were conducted with 8 students. The first interview was conducted during the first week of the project and the second was conducted at the end of the project. The interview questions are in the Appendix.

1.7.3.2 Teacher's Journal

A teacher's journal is an ongoing written account of observations, reflections, and other thoughts about teaching, usually in the form of a notebook, book, or electronic mode, which serves as a source of discussion, reflection, or evaluation. The journal may be used as a record of incidents, problems, and insights that occurred during lessons; it may be an account of a class that the teacher would like to review or return to later; or it may be a source of information that can be shared with others (Richards & Farrell, 2005, p.83).

In the teacher's journal, not only the classroom is recorded, but also the facial expressions, verbal language, and behavior of the volunteers. The effectiveness
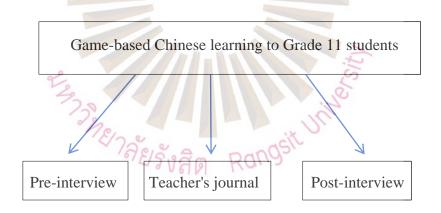
of the lessons can be examined through the interaction with the students in the classroom and their reactions in the classroom.

1.7.4 Data Analysis

In this study, I used content analysis to analyze three data sets. The three data are pre-interviews, post-interviews, and teacher's journals. The content of these three data used "triangulation" for data coding.

1.8 CONCEPTUAL FRAMEWORK

This study used qualitative methodological research with the aim of exploring Thai high school Grade 11 students' perceptions of game-based Chinese learning, and beneficial Chinese language learning ways. Two research instruments were used: interviews and teacher's journals. Figure 1.1 shows conceptual framework.

1.Students' perceptions toward game-based Chinese learning

2.Ways students in this study benefit their Chinese learning

Figure 1.1 Conceptual Framework

1.9 DEFINITION OF TERMS

Game-based Chinese Learning In my study refers to the teaching and learning of Chinese using games as a medium for learning. It focuses on the 4 skills of language acquisition: listening, speaking, reading, and writing.

Grade 11 students They are 21 students, who are studying Chinese in the first semester of the 2023 academic year. 8 volunteers are participating in the project: 3 girls and 5 boys.

Students' Perceptions In this study refer to the opinions the students have toward their learning Chinese through many games the teacher designs for their active learning.

The Chapter 2 is the literature review section.

CHAPTER 2

LITERATURE REVIEW

This chapter reviews the important information that frames this research project. It contains relevant theories, characteristics, types, game-based learning in Chinese language learning, the current situation of Chinese language teaching in Thailand, game-based Chinese learning in Thailand, and related literature.

2.1 INTRODUCTION

Educational administration in Thailand is now more focused on teaching methods that allow students to learn on their own and to actively and positively absorb knowledge. The National Education Act of B.E 2542 mentions that educational institutions and related bodies should "enable instructors to create the atmosphere, environment, teaching media and facilities for the intensive reading process. In this way, learners and teachers can learn together from different types of teaching media and other sources of knowledge (National Education Act, 1999, p.11)". Research learning is likely to be game-based learning (GBL), which aims to be a useful approach to educational reform in Thailand. A "game" in language teaching can be defined as a type of organized activity and usually consists: a specific task or goal, a set of rules, competition between the players and spoken or written language used to communicate between the players (Han, 2009, p. 13). Fun and laughter are necessary components in this complex process. Games are an activity with three main elements: rules, goals, and fun. They provide an opportunity for students to practice, to communicate in the target language, and, although only within certain limits, to bridge the gap between knowledge and application.

GBL is a method of using games incorporated into classroom teaching and learning that keeps students intensely interested and competitive in the game and

actively absorbs knowledge in a hidden way (Antonova & Bontchev, 2019, p.20). The introduction of games has a positive effect on motivating students as they can learn through interaction and teachers can test students' learning (Filsecker & Hickey, 2014, p. 140). The most important benefit of using games in foreign language teaching is that they create a 'relaxed, fun and cooperative atmosphere' (Langan, 1994). As part of classroom teaching, games allow students to easily relate their experiences to their knowledge (Ling, 2005, p.105). In this classroom atmosphere, games increase learners' interest in learning while reviewing the language they have learned and using it to communicate, thus making foreign language teaching effective (Huyen & Nga, 2003, p.91). For my students, who enjoy participating in the games and enjoy the process of playing them, GBL would be an effective teaching method.

2.2 THE ORETICAL FOUNDATIONS OF GAME-BASED LEARNING

Game-based learning is mainly based on the second language acquisition theory.

Second language acquisition is a process by which learners internalize the external knowledge they have acquired into communicative skills, which is an ideal way to use verbal knowledge correctly and flexibly (Hu, 2010, p. 3). Second language acquisition is a complex process that is influenced by many factors (Chen, 2012, p.1), including emotional factors.

Krashen (1982) suggested that when learners are learning a second language, emotional factors have a certain hindering effect on learning, and learners may be swayed by this situation, mainly in the form of depression, lack of confidence, lack of motivation or decline, and being in a chronic state. This psychological barrier makes the learner feel less confident and less motivated. This emotional factor can make it difficult for anyone learning a second language to avoid the psychological barriers of resistance and boredom.

The most important benefit of using games in a second language classroom is that they can regulate the classroom atmosphere and create a relaxed and enjoyable learning atmosphere (Zeng, 2006, p. 61). In teaching Chinese as a foreign language, teachers can use the game teaching method to positively influence learning motivation and the classroom learning environment through flexible and varied teaching forms, create a relaxed, happy, and lively learning atmosphere, remove learners' psychological barriers and arouse their interest in learning Chinese so that learners can gradually fall in love with the happy, lively and relaxed classroom atmosphere and be willing to learn Chinese.

2.3 CHARACTERISTICS OF GAME-BASED LEARNING

According to Han (2009, pp.16-17), there are 7 main characteristics of Game-based Learning (GBL): motivation, flexibility, timely feedback, practicality, cooperative learning, character development, and interest.

2.3.1 Motivation

Games have a tense and enjoyable emotion and are played in a certain space, time, and rules, creating a situation that arouses learners' curiosity, stimulates learners' fantasy, and inspires them to study, this attraction can effectively stimulate learners' motivation (Wei, 2009, p. 55). Chile and Rosas (2003) found that the use of games in the classroom was effective in motivating learners and had a positive effect on classroom teaching. The experiment involved 1274 first and second-year learners from schools in economically disadvantaged areas. The games were chosen to develop the learners' reading, spelling, and mathematical skills. The experimental sample was divided into an experimental group and a control group, and different experimental conditions were set up for the study. The results showed that the experimental group was motivational and showed a significant increase in motivation compared to the control group.

2.3.2 Flexibility

In the process of teaching the Chinese language, teachers have to select games and introduce games according to specific objective conditions and circumstances (Wang, 2014, p.7). The teacher can judge and adjust whether to play the game, its content, its length, etc. according to the classroom conditions, the pace of teaching, the students' state, etc. To help students recall and consolidate what they have learned in the previous lesson, teachers can arrange games during the introduction. To practice and consolidate what has been learned, the teacher can arrange games after the new knowledge has been explained and practiced. Games can also be played towards the end of the lesson to help students review and master the key points of the lesson. Homework can also involve games and activities to help students consolidate and review what they have learned.

Games are not monotonous, but varied and flexible. Some games require physical objects, such as grabbing a stool to answer a question, slapping a ball, etc.; some games require music or video, such as role-playing, film sound replays, etc.; some games require more space, such as eagles catching chicks, carrot squats, ball games, etc. These games require a wide range of games, from simple to difficult, depending on the content, length of time, space, and characteristics of the students.

2.3.3 Timely Feedback

When students are assessed through exams or assignments, it takes a while to get feedback to know how well students are learning. Games not only provide correct answers but also give teachers instant access to the responses of everyone involved. Teachers can use games as a means of getting immediate feedback from a large group of students. At the same time, the feedback obtained through the game will constantly encourage students to improve their performance (Hämäläinen, Manninen, Järvelä, & Häkkinen, 2006). For example, in the last ten minutes of each lesson, I use the "Kahoot" software to conduct a game test. The fun game is accompanied by a tense soundtrack and the students find it exciting and interesting and are happy to participate in the

answers. At the same time, I can see from the data how well the students have mastered the lesson so that I can better adjust and plan new lessons.

2.3.4 Practicality

Games are probably the single most effective way to provide students with a platform to use language and encourage them to use new practical skills (Han, 2009, p. 17). A simple game can be used to develop student's practical skills. Different games can work on different aspects such as writing, vocabulary, grammatical concepts, sentence structure, word relationships, and so on. Students can practice basic skills without getting bored or bored, which makes language learning more sustainable and effective. For example, I use the Bingo game in my classroom to have students practice pinyin or Chinese characters. A 3*3 or 4*4 grid is drawn and filled in with relevant information. Students listen to the sounds and circle the pinyin syllables or Chinese characters and the student who connects the lines wins, which the students enjoy. The knowledge is used in a happy game and the memory is deepened.

2.3.5 Cooperative Learning

Games promote collaboration between students to achieve a common goal. The games allow students to have different learning styles and use their different strengths to create opportunities for inclusion and collaboration. Working in groups reduces their anxiety because it helps them learn (Cooper, Downing & Brownell, 2018). Students want to help, learn, and grow as responsible people (Laine & Lindberg, 2020). I often use group work games in my classroom to emphasize the spirit of group work, where members of the group brainstorm, express their ideas, help each other, and try to make their group win. The whole class learns in a cooperative environment and brings out the strength of the group.

2.3.6 Character Development and Moral Education

Some children's weaknesses in character can be corrected in the course of the game. For example, some children usually do not like to share their experiences with others and are afraid that others will overtake them, but in group cooperation games they need to work together with others to win. Some students can win but cannot lose, but with the understanding of their peers and the encouragement of their teachers, they can learn the correct concept of winning and losing, so that they can understand that even if they fail, they should not give up. Other children are more introverted and less likely to express themselves. But with the warm atmosphere of the game, they can easily integrate into the group and become enthusiastic and generous in the game. Therefore, the games not only help the children to learn something but also develop a healthy personality.

2.3.7 Interesting

Games are enjoyable, fun, cognitively stimulating, and beneficial to mental health (Khalili-Mahani et al., 2020). In the presence of play, even the most reluctant learners find it difficult to resist the invitation to have fun, and fun games often remove the threat of difficulty in learning. The various parts of the game also allow learners to show their different learning styles. For example, visual learners enjoy the displays, cards, props, etc. that are part of the game. Auditory learners benefit from the musical slogans in the game to answer questions, etc. Action-oriented learners exercise their hands-on skills, coordination, etc.

Students can unleash their creative abilities by reducing stress with humor and laughter. In a relaxing atmosphere, the games reduce students' anxiety when they encounter difficulties in learning and can express themselves easily without having to worry about making mistakes. Most importantly, most students will remember the lessons they have learned during the games.

2.4 TYPES OF GAME-BASED LEARNING

Different scholars have different ways of dividing classroom games for GBL.

Wang (2000) divided the games into intellectual games (Scrabble, Jigsaw puzzle, Crossword puzzles), knowledge games, physical games (Hopscotch, Bowling, Musical Chairs), and competition-style games (Lego Building Challenge, Monopoly Deal Card Game, Crab Walk Races).

Abdul Jabbar and Felicia (2015) collated the relevant literature to summarise the main game genres for game-based learning: role-playing games were the most popular game genre, followed by puzzle-based games, action-adventure games, competitive games, simulation-based games, problem-solving games, and strategy games.

Dimitra's (2020) study identified seven main types of GBL methods that were implemented at all levels and in all types of education. Figure 2.1 presents the identified types, and depicts one representative example game for each one of them.

Figure 2.1 Main types of GBL approaches in Education
and representative game examples
Ssource: Dimitra, 2022, p.97

In my study, I designed classroom games according to Wang's and Dimitra's typology of games. For my students, intellectual games help them to engage their brains. Crossword puzzles are designed to allow students to fill in the corresponding Chinese characters horizontally and vertically according to my prompts, and then think about how to combine the horizontal and vertical characters to form the words they are learning in the lesson. physical games allow students to feel excited and exhilarated to join in the games. Learning while playing. For example, Musical Chairs can be designed by placing the word cards on a stool and asking students to dance around the stool in a circle, listening to the music and when the music is paused, the student who has grabbed the stool and sat down reads the word. The game can also be designed as a competition-style game, where students represent different teams and the team of the student who sits on the stool and reads the word correctly gets points. This allows students to cooperate in the game, strengthens their solidarity, and makes practical use of their knowledge in a fun and relaxed atmosphere, as well as deepening their memory.

2.5 GAME-BASED LEARNING IN THE CHINESE LANGUAGE LEARNING

Games are often mentioned when discussing language learning and teaching. Games in language teaching refer to organized language activities in the teaching of foreign or second language classrooms (Richards & Platt, 2000, p.239). Games can refer to language activities that are interspersed with fun, flexible, and varied content to motivate students and consolidate the use of language knowledge in a foreign language or second language classroom (Zeng, 2006, p.61).

For game-based learning, scholars generally define in terms of both teaching content and teaching methods. In terms of teaching content, Wang (2000, p.23) points out that GBL in teaching Chinese as a foreign language is to describe the various types of games that teachers of Chinese as a foreign language use in teaching phonetics, vocabulary, grammar, reading, listening, and writing to enable students to understand and master the grammatical skills related to the language they are learning.

In terms of teaching methods, Zhu and Liang (2008, p.87) point out that GBL is the use of language games to consolidate and enrich students' knowledge, to review or elicit the language knowledge they have practiced, and to apply it in practical communicative situations, to liven up the classroom, to complete the teaching content and to enhance the teaching effect.

Based on this, games, as an integral part of the language curriculum, provide an opportunity to reinforce language practice and to have fun with it, inspiring students to continue learning. This is very important in my Chinese class as well. I have learned from my curiosity as a language teacher that games applied in teaching also have their theories, teachers, educators, and researchers use these theories to support their work.

2.6 THE CURRENT SITUATION OF THE CHINESE LANGUAGE IN THAILAND

At present, Thailand and China have increasing cultural, economic, and trade exchanges, the influence of the Chinese language is growing, and the Thai government is paying more and more attention to Chinese language teaching. According to Li (2022), "Thailand has become one of the countries with the highest density of Confucius Institutes and the fastest development of Chinese language teaching in the world. Public schools, private learning, and international schools have almost all Chinese language courses, which have been able to boycott Chinese church schools in some previous attitudes and policies (Cheng, 2013, pp.4-5).

Improvements and refinements have been made to the teaching system, the professionalism of Chinese as Foreign Language teachers, and the teaching methods (Sun, 2018, p.172). There is a growing number of studies on the current situation of Chinese language teaching in Thailand. Some scholars study the number of students learning Chinese in Thailand, others study the age group of Chinese learners, while others study the curriculum, teachers, and teaching materials (Yin, 2020, p.3).

According to Si (2012), Thailand promotes happy teaching and Thai students are not under pressure to pursue higher education or employment, so they do not focus on learning. The vast majority of Thai schools do not have recess, and it is normal for students to talk and move around freely in class. Chinese teachers are uncomfortable with these situations, which affect the progress and effectiveness of teaching, and may also cause conflicts between students and teachers.

Huang (2013) pointed out that in Chinese language teaching in Thailand. In the teaching of Chinese in Thailand, students' interests are mostly in traditional Chinese culture, food, art, and songs, while the level of interest in language features is low and students are afraid of them.

According to Zhu (2013), the reason for the unsatisfactory effect of teaching Chinese in Thai classrooms is that most Chinese teachers who go to Thailand do not speak Thai, and the classroom language is mostly a combination of Chinese, English, and a small part of Thai. There are also inaccuracies in the expressions spoken, which make students misunderstand and lead to poor classroom teaching results.

Du (2014) pointed out that although Chinese language teaching in Thailand has been around for a long time, there are some problems in terms of teachers including language barriers for volunteer teachers and professional incompetence of local teachers.

Chen (2015) pointed out that Thai-Chinese teacher demand is a very large gap, and most Chinese teachers now come from the Chinese International Promotion Leadership Group office. Most of them are close to graduating or graduating students. Although most of them are studying foreign languages, most of them lack actual foreign Chinese teaching experience. Their support hours are limited (mostly for a year), and when they are familiar with the Thai teaching model, they come home. Therefore, the shortage of teachers is a big problem.

Gao and Wang (2016) pointed out that the majority of Chinese people in northern Thailand have migrated there for political reasons, so more attention is paid to the teaching of Chinese language in northern Thailand than in other regions, and most schools make Chinese a compulsory subject and have a more systematic approach to the curriculum and the selection of teaching materials.

Based on the above information, Chinese language teaching in Thailand is developing rapidly, but there are still many problems to be solved, and these problems have led to different levels of Chinese language teaching in Thailand.

2.7 GAME-BASED CHINESE LEARNING IN THAILAND

Chang (2013) conducted a study on teaching vocabulary using game-based learning at the Royal University of Chiang Rai. He conducted a controlled experiment with 85 students from three different classes of Chinese language students, two classes using traditional teaching methods and one class using game-based learning. Through questionnaire analysis, interviews, and classroom observations, Chang analyzed that the use of games in the classroom has positive implications, creating a relaxed learning atmosphere for students and having an irreplaceable advantage in attracting students' distracted attention, developing their potential, and motivating them to learn. It can also indirectly check students' pre-reading and revision outside the classroom.

Ma (2014) conducted a study of game-based learning in teaching Chinese curriculum at Uthong Secondary School in Thailand. He selected several cases from different teaching targets in each grade and analyzed them according to different student levels, game formats (e.g. group competitions, individual quizzes), and game content (e.g. dialogue drills, after-class exercises). Through classroom observation and evaluation of teaching effectiveness, students have a great interest in game-based learning and their classroom performance is positive and active, achieving a good teaching effect. Among the shortcomings are:

1) Some students reflected lukewarmly, as shown by the low difficulty of the game design and lapses in verbal communication.

2) The teaching efficiency was low, and the original teaching plan could not be implemented to cater to students' preference for fun games.

3) Classroom discipline was poor, with students' emotions running high during the game and difficulties in maintaining classroom discipline (Ma, 2014).

Wang (2014) conducted a research study on Chinese language classrooms at Pibool Uppahatham School in Bangkok, Thailand through classroom observation and method. Wang used game-based learning for Chinese language teaching to analyze the possibility and necessity of implementing game-based learning in the school based on the personality characteristics of the students and the feedback of the actual classroom application. After 10 months of experimentation, it was found that game-based learning is suitable for teaching Chinese in this school and has the following advantages:

1) It helps to stimulate students' interest in learning Chinese, motivates them to learn, and improves the classroom atmosphere.

2) It helps to regulate the atmosphere and rhythm of the Chinese classroom, making students enjoy the Chinese classroom and learn Chinese more.

3) It helps to improve students' practical communication skills.

4) It helps to stimulate students' imagination and creativity.

5) It can cultivate students' teamwork spirit.

6) It helps to bring the relationship between Chinese language teachers and students closer (Wang, 2014)

Zhao (2017) conducted a research study on the use of game-based learning in 'zero-based' Chinese language classes at the Southern Vocational and Technical School in Chanthaburi, Thailand. Games in the areas of phonetics, Chinese characters, vocabulary, grammar, and synthesis were designed to analyze the effectiveness of their application. Three aspects of the study were investigated: classroom observation, questionnaires, and feedback from 173 first-year students in secondary school. The results of the experiment showed that the games were effective in that the classroom became interesting, the students participated better in the teaching activities and the distance between the students and the teacher was reduced. At the same time, the game foundation also enhanced students' sense of teamwork, making full use of Thai students'

rich imaginative and creative conditions and increasing students' motivation to learn Chinese as a foreign language.

Based on the above information, game-based Chinese learning is a suitable teaching method for Thai students, which helps to motivate students, improve the classroom atmosphere, stimulate students' imagination and creativity, and allow them to enjoy the Chinese language classroom. Game-based Chinese learning is an effective teaching method.

2.8 CONCLUSION

Based on the above information, game-based learning has the characteristics of motivation, flexibility, timely feedback, practicality, cooperative learning, character development, and interest. It is a good method suitable for teaching language courses. Teaching using game-based learning creates a relaxed learning atmosphere for students, attracts their distracted attention, develops their potential, and at the same time indirectly checks how well students have mastered their knowledge.

Especially vocabulary, learning vocabulary is a tedious task. And it is difficult to engage students' interest in vocabulary (Huang, 2014, p. 1). My students are active, hands-on, and imaginative, but their concentration is weak, they are easily distracted and can easily lose interest and curiosity in things. Therefore, game-based learning is perfect for my students. It can make my students more interested and motivated to learn and increase their confidence in learning Chinese, as well as bring me closer to them.

According to the literature, most of the recent research on game-based learning focuses on the impact, analyzing the advantages and benefits of using game-based learning for Chinese students in Thailand at different learning stages. However, there is limited research focusing on game-based Chinese learning from the perspective of the student. Therefore, this study examines students' perceptions of game-based Chinese learning using a school in Nonthaburi Province, Thailand, as a case study school. The study also examined how students can benefit from learning Chinese. As a result of this

study, Chinese language teaching methods will be better understood and used in Thai educational contexts.

The next chapter is the research methodology.

CHAPTER 3

METHODOLOGY

This Chapter presents the research design, population and sample of the study, research instruments, validity and reliability of the instruments, data collection, data analysis, and Ethics considerations.

3.1 RESEARCH DESIGN

This study follows a qualitative design using a case study approach. This study focuses on Thai Grade 11 students' perceptions of game-based Chinese language learning. Combining students' perceptions, pre and post-interviews, and teacher's journals to acquire some useful ways for students to improve their Chinese language learning.

This study combines both interviews and teacher's journals as instruments. On a voluntary principle, 8 volunteers were selected as respondents based on different levels of Chinese language proficiency. Using Excel spreadsheets for the content analysis of the pre and post-interviews and teacher's journals data, the three data were analyzed by triangulation of coding to summarise students' perceptions of game-based Chinese language learning, as well as to explore ways of benefiting students' Chinese language learning.

Creswell (2014) mentioned that "a case study is a qualitative design in which the researcher explores a program, event, activity, process, or one or more individuals in depth. Cases are limited by time and activity and researchers use a variety of data collection procedures to gather detailed information over a sustained period" (p. 241). In case studies, a variety of data collection methods are used as they involve an in-depth study of the phenomenon and it is an empirical investigation of the phenomenon in a

real-life context (Yin, 2009, p. 18). Therefore, it is used to generate an in-depth, multifaceted understanding of complex real-life issues and is used in a wide range of disciplines (Crowe et al., 2011). The case study approach is very scientific, systematic, and logical (Sun & Rong, 2021, pp.140-141). As Robert (2005) noted, "Case studies are neither a data collection technique nor limited to the design of the research protocol itself, but a comprehensive and integrated approach to research"(p.16).

3.2 POPULATION AND SAMPLES

The study site is Papaya School (pseudonym) in Nonthaburi, Thailand. The school offers four levels: kindergarten, primary, middle, and high school. All of which begins with Chinese language classes. The Chinese language classes at kindergarten, primary, and middle school are additional interest classes, with each class having one class period a week. There are 5 Chinese teachers in the school, 4 of whom are Chinese and 1 is Thai. There are 482 students and 42 teachers at the high school level. The high school is a small class project class. There are three classes: General Class, Bilingual (English & Thai) Class, and Asia (English-Chinese-Thai trilingual) Class. There is one Asia class for each grade, and Chinese is a compulsory subject. Chinese is the only class in the program that learns Chinese as a third language in addition to English.

The population of the research is the students of the Grade 11 class. They are students studying Chinese in the first semester of the 2023 academic year. There are 21 students in the class. The class had 4 Chinese lessons per week, each lasting 50 minutes. Two are basic Chinese lessons and two are conversational Chinese lessons. Although Chinese is a compulsory subject in this class, the students only use Chinese in class and do not take the initiative to review and preview after class, so they have very few opportunities to use and practice Chinese.

In this class, students were categorized into 4 levels pass, fair, good, and excellent based on their Chinese language proficiency (based on the performance standards of the second semester of 2022), and 2 volunteers were voluntarily recruited for each level, for a total of 8 volunteers. They are 3 girls and 5 boys. Their ages vary

from 16-17. They participated in this study as respondents for the pre and post-interviews, as well as the focus of the observation records in the teacher's journals.

These volunteers are happy to take part in this research project and they want to improve their Chinese language skills. The information and data profile of all participants will be collated according to the students' names (pseudonyms). The following table presents the above information.

Table 3.1 Participant Profiles

No.	Name	Age	Chinese course grades	Chinese proficiency*
1	Deng	16	Chinese Basic Course 56 Chinese Conversation Course 64	Pass
2	Wang	16	Chinese Basic Course 66 Chinese Conversation Course 73	Fair
3	Jiang	17	Chinese Basic Course 67 Chinese Conversation Course 72	Fair
4	Yang	16	Chinese Basic Course 82 Chinese Conversation Course 75	Good
5	Wu	17	Chinese Basic Course 77 Chinese Conversation Course 71	Good
6	Su	16	Chinese Basic Course 56 Chinese Conversation Course 60	Pass
7	Xin	16	Chinese Basic Course 97 Chinese Conversation Course 96	Excellent
8	Zhao	16	Chinese Basic Course 82 Chinese Conversation Course 81	Excellent

Source: Researcher, 2023

*Student achievement in all their Chinese proficiency is rated based on their final examination (Semester 2, 2022), which is allocated below 0-49 Fail, 50-59 Pass, 60-69 Fair, 70-79 Good, and 80-100 Excellent.

3.3 RESEARCH INSTRUMENTS

In this study, two different research instruments were used: interviews and teacher' journals.

3.3.1 Interview

Thomas (2009) mentioned that "semi-structured interviews offer the best of both worlds as far as interviews are concerned, combining a list of questions that should be discussed in a structured manner with the freedom to follow up as needed ". The semi-structured feature allows for in-depth views and opinions, which is desirable for interviewees to expand their responses (Gray, 2014). This is appropriate for my study. My participants were free to express their views in their way and this type of interview will provide me with reliable and comparable qualitative data. Therefore, I used semi-structured interviews.

Each participant in my study was interviewed a total of two times. Both were face-to-face interviews, conducted individually in my offices. The length of the interview for each participant was about 15 minutes. The first interview took place during the first week of the study. The second was conducted at the end of the study. Since my students were not very good at Chinese and English, I invited a Chinese teacher (Thai) to assist in the interviews to minimize linguistic expression errors.

The purpose of the first interview was to find out about the participants' learning backgrounds, their attitudes toward the Chinese language, and their views on the game. This data not only allowed for data analysis but also helped me to understand the actual situation and preferences of the students for my research design. The second interview can see how their views have changed, what the students have gained how they view the game-based teaching and learning, and in what ways to benefit their Chinese, etc. The interview questions are in Appendix B.

3.3.2 Teacher's Journal

A teacher's journal is an ongoing written account of observations, reflections, and other thoughts about teaching, usually in the form of a notebook, book, or electronic mode, which serves as a source of discussion, reflection, or evaluation (Richards & Farrell, 2005). The journal may be used as a record of incidents, problems, and insights that occurred during lessons. It may be an account of a class that I would like to review or return to later. The records of my teacher's journals, including what is happening in class, show the positive atmosphere in class. Journals let me know how the students are feeling, whether they are enjoying themselves, and whether they are having fun. At the same time, I can keep track of my ideas, reflect on issues that arise in my teaching, and plan for the next lesson.

Fu (2009) mentions that classroom observation has three advantages: firstly, classroom observation records what is going on in the classroom and provides reliable and authentic first-hand information. Secondly, classroom observation focuses on a scientific, objective, and systematic approach. Thirdly, a classroom observation is simpler and quicker in the process of data analysis (pp.29-31). Classroom observations are an important way of collecting data for my teacher's journals. Through classroom observations, I will record the actions of participants and students in my teacher's journals. For example, the number of hands raised, the number of snatches, their facial expressions (happy, excited, confused, frustrated), etc.

In the teacher's journals, not only classroom activities are recorded, but also nuances of facial expressions, verbal exchanges, and behaviors of the volunteers. This comprehensive record allows for a thorough analysis of the effectiveness of the course, enabling analysis of the interactions between the teacher and the students as well as the students' reactions in the classroom environment. It provides valuable insights into the dynamics of teaching and learning, as well as the potential for testing the efficiency of teaching methods.

3.4 VALIDITY AND RELIABILITY OF THE INSTRUMENTS

In two sections, validity and reliability of the instruments are given.

3.4.1 Validity

Validity is defined as the extent to which a concept is accurately measured in a study. In the context of research, validity encompasses the assessment of the accuracy and comprehensiveness of the concepts under study (Heale & Twycross, 2015, p.66). The IOC (Objective Consistency in Projects), developed by Rovinelli and Hambleton (1977), is a procedure used in the development of an instrument for assessing content validity at the item development stage. In this study, IOC was used to assess semi-structured interview questions. Three experts were invited to the event. The IOC indicated three scoring levels in its calculations to ensure consistency and coherence of the items. The three experts chose only one answer from these three options as the given score, as follows:

+1: The project meets the objectives or ensures that the following measure meets the stated objectives.

0: It is uncertain or obvious whether the measure meets the objective.

-1: The item does not meet the objective or ensures that the measure does not meet the stated objective.

Three experts ensured the validity of the research tool through a detailed review of content coverage, relevance, and language. The accuracy, applicability, feedback, and recommendations.

3.4.2 Dependability

The reliability of a study refers to the ability to repeat or replicate the results under the same conditions. A study with high reliability means that every study conducted has consistent or highly similar results (Cypress, 2017, p.256).

Pilot studies contribute to the reliability of experiments. Pilot studies are small-scale preliminary investigations conducted before the main study to test feasibility, methodological, and potential problems that may arise during a full-scale experiment (Pace et al., 2012, p.49).

I went to Mango High School(pseudonym) to conduct a pilot study before conducting study. This pilot study helped to assess the feasibility of the research project. This included assessing the time required for data collection, students' willingness to participate, and the reasonableness of the interview questions. Identifying and addressing these feasibility issues early on can increase the reliability of a comprehensive study.

3.5 DATA COLLECTION

In my study, the data collection consisted of pre-interview, post-interview, and teacher's journals.

3.5.1 Interview

The researcher interviewed 8 volunteers. There were two interviews, the first one was conducted in the first week of the project and the second one was conducted at the end of the project. All research activities were approved by the principal of Papaya School and the parents of Grade 11 students.

Because the volunteers' English was not very good, the researcher invited a Chinese teacher (Thai) to assist with the interviews so that the students could speak more freely and understand the questions better. Each interview was face-to-face and lasted for 15 minutes. Records of the interviews were kept for research purposes only, and all information was kept confidential.

3.5.2 Teacher's Journal

Teacher's journals were collected every week right after my class. In the process of writing the journals, I made brief notes on what is being taught in the classroom, and the interactive events and recorded them at each step. I referred to Charttakul's (2009) journal, adapted and divided into a five-column observation framework: the first column is the date. The second column records the content. The third column is to record game-based learning and teaching as well as the duration of time. The fourth column is devoted to the action of each participant's actions. The fifth column is for observation notes.

This data collection was used to study problems one and two. The following table outlines the relationship between the research questions and the data collection.

Table 3.2 The link between research questions and data to answer them

Research Questions	Data
1. What are the students' perceptions of game-based Chinese learning?	1.Teacher's journals 2.Pre-interview: Q.2-4, 6 3.Post-interview: Q.1, 3, 4,7-10
2. In what ways do games benefit students' Chinese learning?	1.Teacher's journals 2.Pre-interview: Q.5, 7-9 3.Post-interview: Q.2, 4-5

Source: Researcher, 2023

3.6 DATA ANALYSIS

Content analysis was used in this study. There were 3 sets of data collected: the pre-interviews and post-interviews, teacher's journals. I used triangulation to analyze the data. Data was analyzed according to constructivist theory to identify themes, encode recurring ideas, and organize them (Charmaz, 2006; Wertz, 2011). The contents of the three data sets were used for coding in Excel.

According to Krippendorff (2018), content analysis is a research method that draws reliable conclusions about the context of data. It is primarily used to analyze documentary information in text, media, or physical form to evaluate patterns in one piece of content (such as a word, phrase, or image) or multiple pieces of content. Content analysis is reliable because of its stability, repeatability, and accuracy (Harwood, & Garry, 2003, p.479).

Content analysis requires a closer look at patterns in qualitative analysis and the potential implications that researchers may find can even change the course of the research. It is inductive and begins with open-ended research questions rather than hypotheses (White & Marsh, 2006, p. 30).

3.7 ETHICS CONSIDERATIONS

Ethics is the branch of philosophy that seeks to determine the proper application of moral concepts, such as good and bad and right and wrong, or the theory of the application or nature of such concepts (Encyclopedia Britannica). Research ethics refers to the set of guidelines and obligations that guide and govern the ethics and conduct of researchers in scientific research and related contexts, including obtaining the voluntary consent of subjects, allowing subjects to terminate their participation in research at any time, minimizing risk and suffering to subjects, ensuring that the expected benefits of the research outweigh the risks of research, and ensuring the quality

of the discipline (Wiles, Coffey, Robison, & Prosser, 2012). It aims to promote free, reliable, and accountable research.

It is the responsibility of researchers to ensure that ethical standards are upheld in research and that consent and approval are obtained from each participant before they participate. Before the study began, participants were provided with clear and detailed information about the purpose and overall process of the study. Research data and their personal opinions will be treated with the utmost confidentiality and presented anonymously. This commitment to anonymity helps protect the privacy and identity of participants.

Additionally, the data collected is maintained securely and used only for the purposes outlined in the study. Permission was obtained for data collection for this study. Participants were expressly assured by the researchers that their information would not be used for any other unrelated purposes. This research protocol underwent a comprehensive review and approval process by the Research Ethics Office of Rangsit University, as shown in Appendix A.

3.8 CONCLUSION

Chapter 3 provides 7 pieces of information. My study follows a qualitative design using a case study approach. The case school is Papaya School, a private school in Nonthaburi, Thailand. In this high school. There are 8 volunteers involved in the project, they are 3 girls and 5 boys. Their ages vary from 16-17. In my study, I collected 3 different dates: teacher's journals, and pre and post-interviews. Teacher's journals were collected every week right after my class. Each participant in my study was interviewed a total of two times. Both were face-to-face interviews. The first interview took place during the first week of the study. The second was conducted at the end of the study. In my study, I triangulated the data from content analysis.

Chapter 4 which follows presents an analysis of the data obtained in the course of my research as well as the results of data analysis.

CHAPTER 4

RESEARCH RESULTS

4.1 INTRODUCTION

This Chapter discusses the implementation of game-based teaching and learning to answer the following research questions:

1) What are the students' perceptions of game-based Chinese learning?

2) In what ways do games benefit students' Chinese learning?

The data to answer the above questions comes from 3 sources, namely pre-interview, post-interview, and teacher's journals.

Section 4.2 contains the answer to the research question on the research question about students' perceptions of game-based Chinese learning, and section 4.3 shows the answer to the research question in what way to benefit students' Chinese learning.

4.2 STUDENTS' PERCEPTIONS OF GAME-BASED CHINESE LEARNING

To find students' perceptions of game-based Chinese learning, I analyzed 3 data sets: pre-interview, post-interview, and teacher's journals. There were 4 findings from these data.

The first is that the games make students more interested and engaged in learning Chinese. The evidence is as follows:

Based on pre and post interviews data, students thought games were fun and could interest them in Chinese. Game-based learning in Chinese lessons has the potential to enhance both interest and motivation for learning.

"I think games are very interesting, I wish I could play games in every lesson. Chinese lessons like this are so interesting and I enjoy them." (Interviewee No.4, personal communication, July 3rd, 2023).

"Playing games doesn't make me sleepy or bored, it makes me feel excited and interesting." (Interviewee No.2, personal communication, July 3rd, 2023).

"My favorite games are those that require me to move my limbs, they excite me. It is easy for me to fall asleep if I am seated all the time. Playing games helps me to stay energized and engaged. It also helps me to stay focused and motivated." (Interviewee No.1, personal communication, September 18th, 2023).

"Playing games makes me learn more words, as well as sentences. I think Chinese has become more interesting and I am looking forward to Chinese lessons." (Interviewee No.3, personal communication, September 18th, 2023).

Referring to the data from these, it seems like students find game-based learning interesting and engaging. The expressed desire of Yang to have games in every lesson indicates a high level of interest. This suggests that integrating game-based learning into the curriculum could enhance overall lesson enjoyment for students. Wang's statement about games preventing boredom and sleepiness aligns with the idea that maintaining student interest is crucial for an effective learning environment. Jiang's observation that playing games contributes to learning more words and sentences suggests a positive correlation between game-based learning and language acquisition. The anticipation for Chinese lessons indicates a sustained motivation, possibly fueled by the enjoyable and engaging nature of game-based learning. These findings suggest that incorporating game-based learning into Chinese lessons has the potential to enhance

both enjoyment and motivation for learning. Consideration could be given to the types of games that involve physical movement, as mentioned by Deng, as they seem to contribute to increased engagement.

According to Teacher's Journals, game-based learning has the potential to provide engaging and enjoyable learning environments. In addition, the collaboration and team-building elements of the games may contribute to a positive social environment in the classroom.

"While playing the game, Zhao was having a lot of fun, even though she was unable to grab a chair to sit on and fell to the ground laughing. In the next round, she was still unable to grab a chair to sit on, so she quietly encouraged her friend. Her friend was able to grab a chair and sat down, continuing to play the game. Zhao cheered for her friend and continued playing the game with enthusiasm." (Interviewee Teacher's Journal 1, personal communication, July 14th, 2023)

"Wu and Jiang were in a group. A role was assigned to Jiang for describing the words using his body, and a role was assigned to Wu for guessing them. In the process, they were laughing at every word they described. While Wu couldn't guess the words, Jiang made the body movements more exaggerated. They worked well together and correctly guessed many words. Jiang was sweating profusely and laughing continuously. Wu was amazed at the way Jiang was able to make the body movements so accurately. Jiang was impressed with Wu's ability to guess the words. They both had a great time playing the game." (Interviewee Teacher's Journal 4, personal communication, August 18th, 2023)

"I presented the theme to the groups, and they scrambled to answer the questions vigorously. After their peers answered correctly, they clapped and shouted in encouragement. There was a lot of laughter after the game ended, and many students said they were eager to continue playing the game in the

following class." (Interviewee Teacher's Journal 6, personal communication, September 1st, 2023)

Based on the data from the Teacher's Journals, I can make the following analysis. Despite facing challenges during the game, Zhao's reaction of falling to the ground laughing, and continuing to play with enthusiasm indicates a high level of enjoyment. This suggests that the playful nature of the game contributes significantly to a positive learning experience. The continuous laughter during the word-guessing game involving Wu and Jiang emphasizes the enjoyable atmosphere created by the game. The laughter becomes a key component of the learning process, making the activity engaging and memorable. The energetic response of students, including clapping, shouting, and laughter, after participating in the game demonstrates the overall enjoyment of the activity. The eagerness expressed by students to continue playing the game in the following class, as mentioned in Teacher's Journal 6, suggests that the game has a positive impact on student motivation. The anticipation for future game-based activities indicates a sustained interest in the learning process.

Owing to the given evidence, games were fun and exciting. These excerpts highlight the positive impact of games on student engagement and enjoyment of Chinese lessons. Students express a strong interest in game-based Chinese learning, finding it enjoyable and exciting. Students enjoyed the process and they became more interested in Chinese. Especially for Physical activity games, which require movement, are particularly appealing to students and help them stay energized and engaged. It can be seen that the games are a way to make Chinese lessons more interesting and engaging, and students look forward to them. These data can be found in the pre and post-interviews and the data from the teacher's journals. These data reflect students' perceptions of game-based Chinese learning.

The second is that the games can enhance student's sense of self-confidence. The evidence is as follows:

According to pre and post-interviews, students thought games allowed students to relax and enhance their confidence.

"I am too shy to raise my hand to answer questions. Games help me build my confidence and help me feel more comfortable asking questions." (Interviewee No.6, personal communication, July 4th, 2023).

"I feel I have become a lot braver and more confident, my peers have helped me a lot, I am more willing to express myself and I am less afraid of answering incorrectly."(Interviewee No.6, personal communication, September 19th, 2023).

"I love playing the game Musical Chairs, every time the music plays I start to get nervous. I enjoy myself during the game and when I grab a stool and answer the question correctly. It's very rewarding and I feel great." (Interviewee No.2, personal communication, September 18th, 2023).

The data from the pre and post interviews above showed Su was too shy to raise her hand. This evidence indicates a lack of confidence in traditional classroom settings. However, in the post-interview, Su expressed that games help her build confidence and feel more comfortable asking questions. This transformation highlights the positive impact of games on students' self-assurance and willingness to participate actively. Wang's description of playing the game Musical Chairs reveals the emotional impact of game-based learning. The nervousness before grabbing a stool and the sense of reward and accomplishment when answering a question correctly contribute to a positive and rewarding experience. This positive emotional association with learning enhances students' overall enjoyment and confidence. Therefore, it can be summarized that Games provide a conducive environment for shy or reserved students to build confidence and overcome communication barriers (Cam & Tran, 2017). In addition, the collaborative and interactive nature of games can create a supportive environment that encourages students to express themselves without fear.

Then there is the evidence from the Teacher's Journal, that as a result of playing games, students can build their self-confidence and become closer to each other.

"Deng won the first two rounds of the game and he was very happy and confident. When Wang lost the game, Deng went to comfort and encourage him, explained to Wang the tricks of the game, and helped him practice the words with Wang. During the third round of the game, Wang won third place and was very excited the third place and he was very excited. Wang thanked Deng for his help and encouragement." (Interviewee Teacher's Journal 3, personal communication, August 11st, 2023)

Referring to the data from the teacher's journal, I can make the following analysis. Deng's success in the first two rounds of the game resulted in a boost in his confidence. Winning the game contributed to a positive emotional experience, providing Deng with a sense of accomplishment and assurance in his abilities. When Wang faced a setback by losing the game, Deng's response demonstrates the supportive nature of the gaming environment. Deng actively comforted and encouraged Wang, showing empathy and understanding. This peer support is crucial in creating a positive and collaborative atmosphere, fostering a sense of belonging and confidence among students. Deng's initiative was to explain the tricks of the game to Wang and help him practice the words. This collaborative knowledge-sharing not only supports individual learning but also contributes to a communal sense of achievement and confidence(Brouwer & Jansen, 2019). This analysis suggests that game-based learning not only allows students to relax but also creates opportunities for confidence-building through individual and peer achievements.

According to the given evidence, games not only provide students with a fun and relaxing learning experience, but they also enhance students' self-confidence and develop healthy, positive personalities. These data can be found in the pre- and post-interviews and the data from the teachers' journals. These data reflect students' perceptions of game-based Chinese learning.

The third is that the games make Chinese learning more efficient. The evidence is as follows:

Based on pre and post interviews, students thought that games could focus their attention, particularly those that move the body, which can improve their spirit and focus their concentration while the knowledge is remembered more long-lasting.

"I am easily distracted and often sleepy in class. When playing games, I can concentrate. I think that playing games helps me to stay alert and focused." (Interviewee No.1, personal communication, July 3th, 2023).

"Games have made Chinese fun and easier for me. While playing the games, I was able to review what I had learned, understand it better, and keep it in my memory for a longer period." (Interviewee No.1, personal communication, September 19th, 2023).

"Usually, I get sleepy easily in the first class in the morning and the first class in the afternoon. At this time if the teacher lets us play games, I can concentrate and stay in good spirits." (Interviewee No.5, personal communication, September 19th, 2023).

"I am very focused while playing games, especially competition games. Therefore, I pay close attention to what the teacher is saying when he is teaching, and I answer questions correctly when I play games." (Interviewee No.7, personal communication, September 19th, 2023).

By analyzing the data gathered from the Teacher's Journals, I can make the following analysis. Deng, in the pre-interview, notes that playing games helps him concentrate, especially when easily distracted or feeling sleepy in class. This suggests that the interactive and engaging nature of games captures attention, fostering increased focus and concentration. Deng's post-interview indicates that games contribute to making Chinese learning more efficient by making it fun and easier. Active engagement

during games allows for the review and better understanding of learned content, leading to improved retention and longer-lasting memory. Wu, in the pre-interview, highlights the effectiveness of games in maintaining concentration and good spirits during times when sleepiness might be a challenge. This suggests that games act as a tool to mitigate factors that could hinder effective learning, especially during early morning or afternoon classes. Xin, in the post-interview, emphasizes heightened focus during games, particularly competitive ones. This heightened focus carries over to the regular class, contributing to improved classroom participation and the ability to answer questions correctly.

Following the teacher's journals, the students are better able to integrate their previous knowledge with their new knowledge when they play the game. In addition, students develop a more comprehensive understanding of the concepts.

"Before the game, Deng was tired and sleepy, and when he heard that he would be ready to play, he became excited. As he played the game, he danced to the music and enjoyed it. Upon hearing the music suddenly pause, he took action quickly and sat down in the chair and read aloud the words on it. After the game, he was energized and had learned several new words."(Interviewee Teacher's Journal 1, personal communication, July 14th, 2023)

"After I taught the students the strategy of guessing words, I noticed that they could take a word, break it apart, and express it separately, even words that their peers may not be familiar with. They could guess the words separately through physical expression, and then combine them into one word. Additionally, students learned how to combine the meanings of single words, and were able to understand the meaning of single words quickly. It was rewarding to see them use strategies to come up with new words and understand the meaning of the words." (Interviewee Teacher's Journal 4, personal communication, August 18th, 2023)

"Many groups of students spent a great deal of time analyzing the problem and discussing it but were unable to come up with a solution. I got the students to compare and contrast the clause grammar from the previous semester. After reviewing the books, the students discussed and exchanged ideas and discovered the similarities between the two grammars, which quickly resolved the issue. Through this process, I found that the students were able to integrate their previous knowledge with their new understanding. This gave them a better understanding of the concept, and they were then able to develop creative solutions to the problem." (Interviewee Teacher's Journal 5, personal communication, August 25th, 2023)

As a result of analyzing the Teacher's Journals, I can make the following analysis. In Teacher's Journal 1, the description of Deng's transformation from a tired and sleepy state to an excited and engaged state during the game suggests that the game had a positive impact on his energy levels and enthusiasm. This change in mood and energy can contribute to a more conducive learning environment. Teacher's Journal 4 highlights the teacher's observation of students' enhanced ability to break down and express words separately, demonstrating a strategic approach to word guessing. The use of physical expression in word guessing contributes to efficient language learning. In Teacher's Journal 5, the description of students analyzing and discussing grammar issues demonstrates the efficient integration of previous knowledge with new understanding. This process not only aids in resolving specific language issues but also facilitates deeper comprehension of the grammatical concept, showcasing the efficiency of game-based learning in connecting different aspects of language knowledge.

Based on the given evidence, games can improve concentration and make students more focused. In this process, they are better able to integrate their previous knowledge with their new knowledge, resulting in more effective learning. These data can be found in the pre and post interviews and the data from the teachers' journals. These data reflect students' perceptions of game-based Chinese learning.

In summary, there are 3 students' perceptions of game-based Chinese learning. First, games make students more interested in learning Chinese. Second, games can enhance student's sense of self-confidence. Third, games make Chinese learning more efficient. Figure 4.1 summarizing students' perceptions of game-based Chinese learning is shown next page.
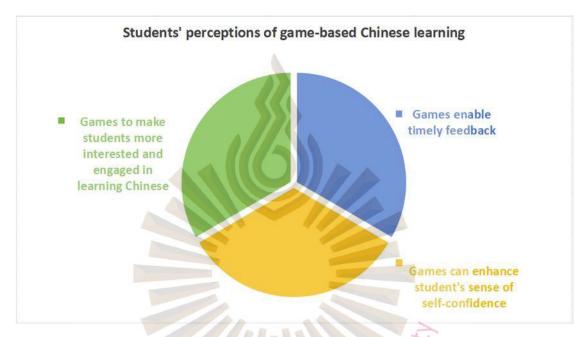
Figure 4.1 Students' perceptions of game-based Chinese learning

4.3 STUDENTS' LEARNING WAYS BENEFIT TO THEIR CHINESE LEARNING

To find ways students in this study benefit their Chinese learning, I analyzed 3 datasets: pre-interview, post-interview, and teacher journals. There were 4 findings from these data.

The first is to collaborate and work with partners, in which students work together in the games to find out the answers. The evidence is as follows:

According to data collected from pre and post-interviews, the games enhance students' ability to work together and to solve problems together. Teamwork games promote positive attitudes, enjoyment, and efficiency in collaborative learning.

"I love teamwork games like Protect the Castle. To share the work with my partner is an excellent and exciting experience. It's a great way to practice Chinese and work together. It's also a great way to build trust and collaborate." (Interviewee No.3, personal communication, July 3th, 2023).

"I enjoyed playing a game in which I reviewed and applied my knowledge without realizing it. In the teamwork game, I feel good that we all work together to be able to win the game." (Interviewee No.5, personal communication, September 19th, 2023).

"I learned a lot, especially about sharing work with a partner. Everyone is assigned a different job, and it's fun and more efficient to do the collation and discuss it together after you've done it alone, combining everyone's content and ideas. If I finish the game by myself, I feel lonely and helpless."(Interviewee No.6, personal communication, September 19th, 2023).

Based on the data from the pre and post interviews, I can make the following analysis. Jiang, in the pre-interview, expresses a positive attitude toward teamwork games, emphasizing that sharing the work with a partner is an excellent and exciting experience. This positive perception of collaborative learning suggests that teamwork games contribute to a favorable learning environment. Wu, in the post-interview, highlights the enjoyment derived from playing a game that involves teamwork. The collaborative nature of the game allows for the review and application of knowledge engagingly and enjoyably, contributing to a positive learning experience. Zhao, in the post-interview, emphasizes the efficiency and collaborative benefits of working with a partner. The distribution of different jobs among team members and the subsequent collaboration in collating and discussing ideas contribute to a more efficient and enriching learning process.

According to teacher's journal, the games enhanced students' ability to work together as a team. Students can learn how to share work, delegate tasks, organize ideas, and improve results. Structured group dynamics and organized collaboration enhance the overall efficiency and effectiveness of group-based activities.

"In the game, Jiang, Yang, Wu, and Wang formed a team and were very active. Their first step was to discuss together and decide on a strategy: each of them memorized different theme words and prepared five of them. When the theme has been presented by the teacher, the person responsible for the words will be responsible for taking the answer. This strategy allowed them to cover all the themes quickly. In the end, they won the game. " (Interviewee Teacher's Journal 2, personal communication, July 21th, 2023)

"The students enjoyed working in groups and worked well with their partners. For example, the group leader organized the group's work tasks, and the group scheduled time to complete them. They shared ideas, they discussed and agreed to make decisions." (Interviewee Teacher's Journal 3, personal communication, July 21th, 2023)

"The students are grouped and each member of the group begins by making a sentence based on the prompted words. After they have completed the sentence, they discuss it together, give their opinions and ideas, revise the sentence, and record it in their books. Then they discussed and worked out the order of each group member's answers. During the game, they responded to the questions in an orderly manner and obtained first place with a high percentage of correct answers. They discussed the incorrect questions together and actively asked me questions following the game." (Interviewee Teacher's Journal 5, personal communication, August 25th, 2023)

Following are the results of my analysis of the teacher's journals. In teacher's journal 2, the description of Jiang, Yang, Wu, and Wang forming a team and strategizing to memorize different theme words demonstrates effective teamwork strategies. Their

coordinated approach, with each member assigned specific responsibilities, resulted in a successful outcome, winning the game. Collaboration and strategic planning play an important role in achieving common objectives. In Teacher's Journal 3, students work in groups to maximize learning. The group leader's role in organizing tasks, scheduling time, sharing ideas, and making collaborative decisions showcases the structured collaboration within the group. This organized approach contributes to effective teamwork and a positive learning environment. In Teacher's Journal 5, the description of students working together in a structured manner to create sentences, discuss answers, and determine the order of responses illustrates the orderly collaboration within the groups.

According to the evidence presented, the way to benefit students' Chinese learning is through cooperation with a partner. The students could learn from each other and work together on projects. They also developed better teamwork and communication abilities. These data can be found in the pre and post interviews and the data from the teachers' journals. These data reflect one way in which these students improved their Chinese learning.

The second is to communicate and share with partners. The evidence is as follows:

As evidenced by Teacher's Journals, effective communication, and information sharing contribute to a positive and rewarding collaborative learning experience. Through discussions, communication, and cooperation, students discover and correct each other's errors. This helps the students learn from each other. And they can learn how to solve problems with peers.

"Xin, Wang, and Jiang formed a team, and they discussed together first, creating sentences one by one using the game study words. Then they analyzed the sentences to see if they were grammatically correct. A short time later, Wang noticed that one of the sentences had an incomplete constituent and lacked a predicate. After discussing the problem, they were able to correct

it. Jiang also found an error in another sentence as usual. They discussed the sentence and realized that the sentence was wrong due to a misused verb. They quickly fixed the sentence and moved on." (Interviewee Teacher's Journal 2, personal communication, July 21st, 2023)

"Zhao and Xin work together: Xin looks through books to find the same examples, while Zhao searches on her phone. Their notebooks were used to record the information they searched, to discuss it with one another, as well as to compare and analyze it. Soon, they made a discovery, discovered the answer, and hugged each other with great excitement. They celebrated their success by singing a song together. Xin and Zhao were proud of their accomplishment and their teamwork." (Interviewee Teacher's Journal 5, personal communication, August 25th, 2023)

Referring to the data from the teacher's journals, I can make the following analysis. In teacher's journal 2, Xin, Wang, and Jiang form a team and engage in collaborative sentence creation using game study words. The process involves discussing, creating sentences one by one, and analyzing them for grammatical correctness. As a result of this collaborative approach, not only are communication skills fostered, but also the ability to analyze errors together and correct them, demonstrating the effectiveness of teamwork. In Teacher's Journal 5, Zhao and Xin collaborate to find examples together. Through the use of notebooks, information can be recorded, findings discussed, and results compared and analyzed, demonstrating effective communication and information sharing. Their shared discovery is celebrated with excitement, reinforcing the positive impact of collaborative efforts.

According to student interviews conducted before and after the course, students claimed that they could benefit from learning from one another's mistakes and improving their strategies. It helps them develop problem-solving skills and critical thinking. Creative thinking and divergent thinking are stimulated by the process of teamwork. Meanwhile, partner support and effective communication contribute to increased confidence and positive learning experiences.

"I enjoy teamwork games. Because we can learn from each other's mistakes and improve our strategies. Playing games also helps us to develop problem-solving skills and critical thinking." (Interviewee No.5, personal communication, July 4th, 2023).

"I have learned to work with my partners, share ideas, communicate, and discuss them with them. Having my partners support me and encourage me has helped me feel more secure and I have gained much more confidence as a result." (Interviewee No.6, personal communication, September 19th, 2023).

"During the teamwork game, we all work together for the same goal, and everyone plays according to his/her strengths, discusses with one another, and collaborates. It challenges me to be creative and think outside of the box. It also allows me to explore new ideas and concepts. I enjoy this process (Interviewee No.8, personal communication, September 19th, 2023)

Owing to the data from the pre and post interviews, I can make the following analysis. Wu expresses his enjoyment of teamwork games, citing the opportunities to learn from each other's mistakes and improve strategies. As a result, collaborative learning in the context of games contributes to the development of problem-solving abilities. Su, in the post-interview, reflects on the learning experience of working with partners. Sharing ideas, communicating, and receiving support and encouragement from partners have contributed to Su feeling more secure and gaining confidence. This underscores the social and emotional benefits of collaborative learning. Zhao, in the post-interview, describes the teamwork game as a collaborative effort toward a common goal. Each team member contributes according to their strengths, fostering discussions and collaboration. The experience challenges Zhao to be creative, think outside the box, and explore new ideas and concepts, highlighting the role of collaboration in stimulating creativity.

Based on the evidence given, the way to benefit students' Chinese learning is by communicating and sharing with their partners. Students can learn to share their ideas

and their peers to solve problems together. Through discussions, communication, and cooperation, students discover and correct each other's errors. This helps the students learn from each other. It also helps them develop a better understanding of Chinese and develop problem-solving skills and critical thinking. These data reflect one way in which these students improved their Chinese learning.

The third is to actively search for more relevant knowledge. The evidence is as follows:

According to Teacher's Journals, students actively use tools to search for knowledge. The game encourages students to actively participate in the analysis and comparison of language components to deepen their understanding. and, incorporate dynamic and real-time information retrieval activities to promote a proactive approach to learning.

"Jiang and Wu marked the subject-verb-object components of the sentences with colored pens, then rearranged the words and read them out loud. Additionally, they found similar sentences in their books and compared them repeatedly. A few minutes later, they were able to identify the grammatical similarities. " (Interviewee Teacher's Journal 5, personal communication, August 25th, 2023)

"The word Yang prepared was answered first by the other group while Yang was answering the question. Wu used his mobile phone to search for the dictionary, which Jiang immediately looked up. When the countdown was nearing its conclusion, Wu found the word and spoke it aloud." (Interviewee Teacher's Journal 5, personal communication, August 25th, 2023)

"As the other group was answering, Xin was unaware of the meaning of the word being uttered by her classmate. Then she immediately searched the dictionary for the word. At the end of the game, she looked up the word in the dictionary to determine what it meant and recorded it in her notebook."

(Interviewee Teacher's Journal 6, personal communication, September 1st, 2023)

In Teacher's Journal 5, Jiang and Wu engage in an active process of analyzing sentences by marking components and rearranging words. They also compare similar sentences in their books, demonstrating a proactive approach to understanding grammatical structures. This process involves critical thinking and self-directed learning. In the same journal entry, it describes instances where students actively search for knowledge during the game. Wu uses his mobile phone to search for a dictionary, and Jiang immediately looks up relevant information. This dynamic and real-time information retrieval illustrates the students' active engagement in seeking knowledge during the gameplay. In Teacher's Journal 6, Xin is described as immediately searching the dictionary for the meaning of a word she is unfamiliar with. This quick and proactive approach to looking up information reflects the students' commitment to understanding concepts in real-time, contributing to their knowledge acquisition.

In light of pre and post interviews, games foster intrinsic motivation by designing games that are challenging and fun. They encourage students to use various tools such as the Internet to conduct active knowledge searches in language learning activities.

"Games are fun and I enjoy them. I like challenging games, and I'm excited about finding the answer, I want to try hard to find different ways and tools to find it and solve it, and I get to gain new knowledge in the process!" (Interviewee No.8, personal communication, July 4th, 2023).

"My Chinese has improved. If I am unable to find the relevant knowledge and analysis in the textbook, I will search the Internet for the necessary information. I find this process to be very interesting since I can learn many new authentic expressions Through this process I have been able to gain a better understanding of Chinese culture. I have also become more confident in

speaking Chinese." (Interviewee No.5, personal communication, September 19th, 2023).

"I learned a lot of words that were not in the textbook. During the game, I looked for a great deal of answers to prevent my answers from being taken by my opponents. Therefore, I used my mobile phone, would look up the answers and write them down quickly. As a result, I gained a greater knowledge of words without even realizing what I was doing."(Interviewee No.7, personal communication, September 19th, 2023).

In the pre and post interviews, Zhao expresses a strong intrinsic motivation for actively searching for knowledge during games. The enjoyment comes from the challenge, excitement, and the process of finding answers. This suggests that intrinsic motivation plays a significant role in driving active knowledge-seeking behavior. According to Wang, internet searches can be used to obtain relevant information that is not provided in the text. This active engagement in seeking authentic expressions on the Internet contributes to a deeper understanding of Chinese culture and enhanced language proficiency. It demonstrates a proactive approach to knowledge acquisition. Xin's pre-interview indicates that participating in the game motivates her to actively search for answers to prevent opponents from taking them. This unintentional yet effective method of learning reflects the positive outcomes of active knowledge-seeking behaviors during gameplay.

Based on the given evidence, the way to benefit students' Chinese learning is by actively searching for more relevant knowledge. During the game, students actively use a variety of tools (books, dictionaries, phones, etc.) to find knowledge to solve problems, thereby increasing their understanding of concepts and developing their language skills. These data reflect one way in which these students improved their Chinese learning.

The fourth is to create a meaningful language environment. The evidence is as follows:

According to Teacher's Journals data, it can be found that in a limited time, students can repeat language use through the use of games. Students benefit from playing games, as they develop reflexes and can memorize vocabulary words to a greater extent.

"Before the game began, students took out their textbooks and continued practicing the pronunciation and meaning of the words. They double-checked with their classmates and me to ensure they were pronouncing the words correctly. Students walked around the entire time while reading aloud the words during the game. Many of the students repeated the words during the game and memorized their meanings." (Interviewee Teacher's Journal 1, personal communication, July 14th, 2023)

"As the students played the game, they were sweating profusely, but they were having a good time as well. Students were attentively listening to my instructions during the game. Other students were repeating the words aloud and memorizing them. As a result of this game, I found students are not only able to repeat the words they learn many times, but they are also able to hone their reflexes and deepen their memory of the words after experiencing quick responses to them." (Interviewee Teacher's Journal 3, personal communication, August 11th, 2023)

As a result of analyzing the data from the Teacher's Journals, the following conclusions are reached. In Teacher's Journal 1, I described students engaging in interactive pronunciation practice before the game. They consulted their textbooks, practiced pronunciation, and double-checked with classmates and the teacher. This process creates a meaningful language environment by emphasizing accurate pronunciation and collaborative learning. As noted in Teacher's Journal 3, students actively participated in the game, with some students repeating words aloud and memorizing them. The emphasis on attentive listening, quick responses, and sweating profusely indicates a dynamic and engaging language environment. The game not only

facilitates repetition but also contributes to reflex development and deepening the memory of words.

Referring to the pre and post-interviews, students can recognize and address challenges and frustrations in language learning. Practicing the same types of words and sentences repeatedly along with fun games improves the ability to use Chinese and increases motivation and efficiency.

> "Chinese is a bit difficult. I think I understand what the teacher teaches me in class, but I don't know how to apply it. I get frustrated when I do the exercises and tests because I don't know how to answer them." (Interviewee No.5, personal communication, July 4th, 2023).

> "Chinese isn't too hard, but sometimes it's boring, especially when memorizing words. I remember them in class, but I don't take the initiative to memorize and practice them after class, so I always forget them quickly." (Interviewee No.7, personal communication, July 4th, 2023).

> "Games have made me more willing to use Chinese actively. I enjoy playing them because they are not as boring as writing assignments, and I get to apply my knowledge and consolidate it at the same time." (Interviewee No.5, personal communication, September 19th, 2023).

> "Games are enjoyable and will enable me to remember words, to use them repeatedly while playing, and to work out in a safe environment in which I will not forget easily. Games can also help to motivate me to learn Chinese more effectively." (Interviewee No.7, personal communication, September 19th, 2023).

> "During this time, my Chinese has improved a lot. I used Chinese a lot when playing games. By practicing the same type of words and sentences, my listening and speaking skills have improved. I feel much more confident now

when I use Chinese to talk with friends." (Interviewee No.3, personal communication, September 18th, 2023).

Wu, in the pre-interview, expresses challenges and frustrations in learning Chinese. Understanding classroom instruction but struggling with practical application, particularly in exercises and tests, creates frustration. Xin also mentions boredom in memorizing words and a tendency to forget them quickly. In the post-interview, Wu emphasizes the positive impact of games on her willingness to use Chinese actively. Games provide an enjoyable and less boring alternative to traditional methods. As Xin mentioned, games make learning enjoyable, aid in the retention of words, and provide a motivational environment for learning. Jiang, in the post-interview, notes significant improvements in Chinese language skills. Active use of Chinese during games has enhanced listening and speaking skills. This positive impact has led to increased confidence in using Chinese for communication.

According to the given evidence, the way to benefit students' Chinese learning is by creating a meaningful language environment. Students engage in repetition and vocabulary memorization before and during the game. They check pronunciation with their peers and teachers, read the words aloud, and repeat them several times. This repetition helps them to memorize vocabulary and practice listening and speaking skills in Chinese effectively. In addition, through these language-learning games, students become more confident in using Chinese in real-life situations, such as talking to friends. This increased confidence is a positive result of creating a meaningful language environment through games. These data reflect one way in which these students improved their Chinese learning.

In summary, there are four ways to benefit students' Chinese language learning: collaboration and working with partners, communication and sharing with partners, active search for knowledge, and creating a meaningful language environment. Figure 4.2 students' learning ways to benefit their Chinese learning is shown next page:
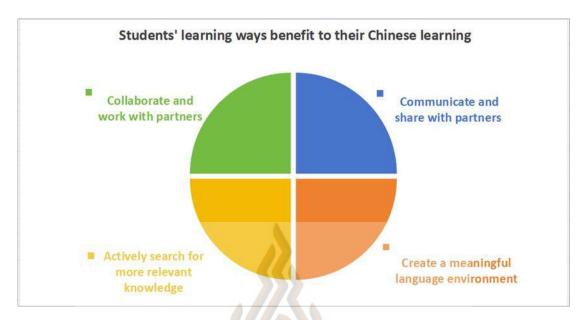
Figure 4.2 Students' learning ways benefit their Chinese learning

4.4 SUMMARY

In the Chapter, findings about students' perceptions and students' learning ways have been reported hand-in-hand. The summary findings are shown below :

Based on the analysis of the data, students' perceptions of game-based Chinese learning reveal several key findings:

1) Interest and engagement: Students view game-based learning as fun and interesting. They express a preference for games, find them engaging, and enjoy the learning process. Games make Chinese lessons more exciting, and students actively participate with enthusiasm. The data suggests that games generate interest and engagement among students, making them look forward to Chinese lessons.

2) Increased self-confidence: Game-based learning helps boost students' self-confidence. It provides a safe and encouraging environment where students are more willing to participate actively, express themselves, and take risks. Students feel more confident in answering questions and engaging in the learning process.

3) Enhanced learning efficiency: Games enhance students' ability to focus and concentrate. They stimulate active participation and concentration, particularly in games that involve physical activity. Students find that games help them

review and understand the material better, resulting in more long-lasting learning outcomes.

In addition, the data reveals how games benefit students' Chinese learning through several strategies:

1) Collaboration and teamwork: Students work together in teams during games, enhancing their collaborative skills, sharing work, and building trust. This teamwork allows them to combine their efforts to achieve a common goal, fostering better problem-solving abilities and interpersonal relationships.

2) Communication and sharing: Game-based learning encourages students to communicate and share with their peers. Through discussions, cooperation, and sharing of ideas, students learn from each other's mistakes and gain a deeper understanding of concepts. This process also stimulates problem-solving, critical thinking, creative thinking, and divergent thinking.

3) Active search for knowledge: Students actively use tools such as books, dictionaries, and smartphones to search for knowledge during games. This active search for information helps students solve problems, gain new knowledge, and understand the content more deeply.

4) Creating a meaningful language environment: Games provide a meaningful language environment where students engage in repetition and vocabulary memorization. They practice pronunciation and word meanings, check their understanding with peers and teachers, and repeat words multiple times. This repetition aids in vocabulary retention and fosters listening and speaking skills.

In conclusion, game-based Chinese learning not only piques students' interest but also enhances their learning efficiency, boosts their confidence, and fosters various skills such as teamwork, communication, problem-solving, active learning, and creating a meaningful language environment.

CHAPTER 5

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

This Chapter discusses the implementation of game-based teaching and learning and aims to answer the following research questions:

(1) What are the students' perceptions of game-based Chinese learning?

(2) In what ways do games benefit students' Chinese learning?

After the conclusion and discussion, recommendations are given.

5.1 CONCLUSION

I have found the data that there are 3 areas of in game-based Chinese learning among students. In addition, there are 4 ways to benefit students' Chinese language learning.

5.1.1 Students' Perceptions

The study identifies 4 types of students' perceptions of game-based Chinese language learning, namely games to make students more interested and engaged in learning Chinese, games to enable timely feedback, games can enhance students' sense of self-confidence, and games to make Chinese learning more efficient.

Firstly, students' perceptions of game-based learning were games make students more interested and engaged in learning Chinese. According to the relevant evidence (Section 4.2), the integration of gamification into Chinese language teaching was positively responded to by students. As students perceived the learning process as enjoyable, this would foster positive attitudes towards language acquisition as well as create a conducive environment for sustained engagement, which in turn would lead to

students enjoying Chinese lessons more and looking forward to them. As a result, students would be more likely to stay motivated and committed to learning the language. This could lead to better learning outcomes and a more positive attitude towards the language.

The traditional method of teaching languages consists of rote memorization and repetitive exercises. Game-based learning introduces an element of novelty and challenge.Through this departure from traditional methods, students can become engaged and immersed in the process of learning, thereby capturing their attention and engaging them in active participation. Students' active participation and enthusiasm were evident in classrooms employing game-based Chinese learning strategies. Games not only serve as motivators but also motivate students to take up challenges and solve problems in the language environment. The apparent enthusiasm of students in the learning process proves the effectiveness of using games as an educational tool.

Secondly, games enable timely feedback. Traditional methods of assessment (homework, exams, etc.) often involve time-consuming processes that prevent students from immediately identifying mistakes and areas for improvement. In contrast, games seamlessly integrate rapid feedback mechanisms that provide students with real-time insights into their performance, and students can quickly identify errors and misunderstandings, thus promoting a proactive and iterative approach to language acquisition (Section 4.2).

Game-based learning is characterized by rapid feedback, which is not only useful for correcting errors quickly but also significantly improves the learning process overall. As a result, students have immediate access to information regarding their performance and can adjust their strategies and reinforce their understanding within a short period. As a result of this dynamic feedback loop, the efficiency of the learning process is improved, as well as students' self-efficacy and sense of autonomy are fostered, enabling them to effectively regulate their cognitive processes and improve their language abilities. When students realize their errors during the game, they can

correct them in time and gain a better understanding of the point so that they can apply it in the future.

Thirdly, games can enhance student's sense of self-confidence. The structured and evaluative nature of assessment, traditional educational environments often present challenges for learners to express themselves freely or take risks. In contrast, game-based learning environments create a positive learning atmosphere that encourages active participation, risk-taking, and self-expression (e.g., Su's pre- and post-interviews, and the teacher's journals). As a result of their interactive and immersive nature, games provide a platform for students to interact with the language in a dynamic and personalized manner, which leads to a greater sense of self-confidence in their ability to learn it.

With game-based Chinese learning, the emphasis on active participation creates an environment in which students feel empowered to handle linguistic challenges on their own. By allowing students to explore, make mistakes, and learn from them, they develop a growth mindset in which challenges are viewed as opportunities for improvement rather than obstacles. Although students learn the Chinese language through game-based activities, the learning environment is carefully designed to encourage active participation and empower students to take on language challenges. As a result of their dynamic and interactive nature, these games provide students with an environment that encourages them to take risks, so they are both willing and motivated to experiment with language use, contributing to the development of language proficiency and enhancing self-confidence. They develop a sense of ownership of their language abilities, develop a positive self-image, and believe in their ability to manage and master the Chinese language.

Fourthly, games make Chinese learning more efficient. The interactivity and dynamism of game-based learning can capture and sustain students' attention, thereby improving attention levels. By Section 4.2, the challenges and variety inherent in in-game scenarios facilitate sustained attention and cognitive engagement. Consequently,

students participating in game-based Chinese learning may exhibit higher levels of attention, which will contribute to more effective and focused language learning.

Additionally, the preference for game-based learning environments further highlights the idea that students find these methods to be more engaging, with clear advantages in terms of comprehension and retention. Adding gamification to the learning process improves its appeal to students as it adds an element of novelty and excitement. Besides maintaining students' interest, the interactive nature of the games improves their ability to understand and retain Chinese content, such as vocabulary and grammar. The game-based approach facilitates the learning process by providing students with a fun and engaging environment, ensuring that students not only master the material more effectively but are also better able to retain it.

5.1.2 Ways to Benefit Students' Chinese Learning

There are 4 ways to encourage students to their Chinese learning: collaboration and working with partners, communication and sharing with partners, active search for knowledge, and creating a meaningful language environment.

The first way is to collaborate and work with partners. Through collaborative games, students can enhance their language skills, develop their collaborative skills, and build a foundation of trust among team members. Students recognize the interdependence required to achieve common language goals as a result of this collaborative component, which catalyzes a more efficient language learning process. The collaborative teamwork inherent in language learning games is one of the major ways in which collaboration manifests itself. By participating in cooperative games, students work together on language challenges, hone their collaboration skills, and develop a foundation of trust within the group. This collaborative aspect not only catalyzes more efficient language learning but also fosters a sense of collective responsibility as students recognize the interdependence required to achieve common language goals.

In addition, they enjoy teamwork that enhances interpersonal relationships among students participating in game-based language learning environments. By working together, students achieve common language goals, develop shared language skills, and develop a sense of camaraderie and mutual understanding. In the process, relationships have a positive impact on the overall learning experience, creating a positive learning environment that encourages knowledge sharing and collaborative growth. Therefore, integrating collaboration and teamwork in game-based language learning not only enhances language proficiency but also strengthens students' interpersonal skills.

The second way is to communicate and share with partners. Collaborative games not only stimulate creative and divergent thinking but also develop effective communication skills. By collaborating, students can share ideas and utilize different perspectives to tackle linguistic challenges. This collaborative exchange not only enhances depth of understanding, but also helps to increase confidence, and with the support of partners and effective communication, students can have a positive learning experience.

In addition, students have the opportunity to learn from each other's mistakes, gain valuable insights, and deepen their understanding of Chinese through participation in discussions. This process develops critical thinking and problem-solving skills while encouraging a culture of shared learning. By collaboratively examining linguistic challenges, students learn how to analyze, synthesize, and evaluate information and develop the cognitive skills needed to acquire a foreign language.

The third way is to actively search for more relevant knowledge. The active search for knowledge in a game-based learning environment represents a dynamic and intellectually stimulating aspect of the educational process. By Section 4.3, the main facilitator of this active knowledge acquisition is the students' active use of various tools (such as books, dictionaries, and smartphones) to find information during the game. In addition to providing information, this process involves critical thinking and promotes independent learning. By actively seeking knowledge, students acquire

linguistic insight by evaluating the relevance and reliability of information. This integration of tools not only enriches the learning experience but also develops skills needed for lifelong learning, making individuals capable of making use of a variety of resources to enhance their understanding of the Chinese language.

Besides, the game itself acts as a catalyst for students to actively participate in analyzing and comparing various Chinese components. This engagement encourages students to critically evaluate Chinese in the context of the game rather than passively receiving information. The ability to decipher Chinese language challenges and acquire new knowledge is enhanced by active participation in analyzing and comparing language components. This proactive approach contributes to a deeper, more nuanced understanding of the language content and develops a sense of mastery and confidence. The fourth way is to create a meaningful language environment. It is beneficial to enhance language competence and to create positive learning experiences by creating meaningful language environments through game-based learning. The inherent ability of games to provide both engaging and meaningful contexts for language acquisition is an important factor contributing to this process. By incorporating fun and enjoyment into the learning process, students' attention is captured as well and their ability to memorize information is aided. In addition to improving their response skills, students also improve their ability to remember and recall vocabulary during active participation in games.

In addition, games can catalyze to stimulate the language environment by immersing students in repetitive tasks, vocabulary memorization, pronunciation practice, and comprehension checks. It is expected that students will gain a deeper understanding of Chinese through active participation in this multifaceted engagement. As the game is repetitive, it contributes to the consolidation of vocabulary, while the interactive element allows for real-time comprehension testing. In addition, the active use of Chinese in a gaming environment enhances listening and speaking skills and contributes to the development of well-rounded language skills. This positive impact on language proficiency also enhances confidence in using Chinese as a

communicative language for communication. This confidence can lead to greater motivation and engagement in Chinese language learning.

Through game-based learning, meaningful language environments can be fostered beyond individual student experiences to include collaborative interactions between peers and teachers. When students collaborate, discuss, and strategize within the game environment, participation in games enhances the social dimension of language acquisition. Not only are language learners enriched, but a supportive and vibrant learning community is also created.

5.2 DISCUSSION

These findings provide instructional design suggestions for improving the Chinese language skills of Thai high school students and motivating them to learn Chinese. In addition, this study reveals ways that benefit students' Chinese language learning. This section discusses these findings. The discussion is as follows:

5.2.1 Students' Perceptions of Game-based Chinese Learning

Students' perceptions of learning Chinese based on games include: games make students more interested and engaged in Chinese learning; games provide timely feedback; games increase students' self-confidence; and games make Chinese learning more efficient.

First, games make students more interested and engaged in Chinese, and they have a positive impact on student engagement and motivation. Chinese language curriculums should incorporate game-based learning, not only in alignment with existing literature that emphasizes the potential of games to increase student engagement and motivation but also contribute significantly to the challenge of maintaining interest in language learning by addressing it. Based on my data, I found that my students have responded enthusiastically to game-based learning, which echoes the findings of Laine

& Lindberg (2020), who believe that well-designed games can create optimal learning environments by providing challenges and encouraging active participation.

Second, data from pre-interview, post-interviews, and teacher journals revealed the impact of games on Chinese lessons, especially in the area of timely feedback. With the game environment, students can identify and correct errors in a dynamic environment. It not only assists in correcting errors but also aids in a deeper understanding of the content (Slijper et al., 2022). Additionally, games can be used not only to deliver feedback but also to optimize the timing of feedback for maximum impact.

Third, games play an important role in enhancing students' self-confidence in the field of Chinese language education. Based on the data, my students' transition from shyness to enhanced confidence is consistent with Ozdemir & Papi's (2022) findings that using fun activities to teach a target language can assist students in developing self-confidence, fostering a growth mindset, as well as reducing language anxiety. Therefore, games can facilitate the development of positive attitudes towards learning, and enhancing motivation and confidence through positive emotions can drive students to overcome communication barriers.

Fourth, integrating games into Chinese language teaching can also improve learning efficiency. According to Section 4.2, the mechanism by which games improve Chinese learning efficiency. During the game, the student's emotional state changes from exhaustion to excitement, illustrating the affective aspect of game-based learning. This finding is consistent with the literature supporting the positive impact of affective engagement on learning outcomes (Laine & Lindberg, 2020). In addition, the descriptions of the students analyzing and discussing grammatical problems indicate that prior knowledge is effectively integrated with new understandings. It is through this process that not only specific linguistic problems can be solved, but also a deeper understanding of grammatical concepts can be achieved. According to research by Kiili (2005), game-based learning facilitates the integration of prior knowledge with new understanding.

In summary, game-based Chinese language learning is effective. The fun of playing games can make students interested and involved in Chinese lessons. The process of playing games and the relaxed atmosphere can help students reduce their language anxiety and increase their self-confidence. In addition, the timely feedback and efficiency of the game can allow students to gain a deeper understanding of the content and integrate new and old information. It contributes to the improvement of the Chinese language, and in particular, the ability to listen and speak in Chinese.

5.2.2 Students' Learning Ways Benefit to Their Chinese Learning

These are 4 ways that encourage Thai high school students to improve their Chinese: collaboration and working with partners, communication and sharing with partners, active search for knowledge, and creating a meaningful language environment. The first way is to collaborate and work with partners. Data indicate that my students' positive attitudes towards teamwork games are attributed to the excitement and excellence associated with collaborating, as well as the efficiency and collaborative advantages of working together. This coincides with research on the motivational benefits of collaborative learning experiences (Deterding, Dixon, Khaled, & Nacke, 2011). The use of games can generate positive affective experiences, increase engagement, and reinforce the acquisition of knowledge, as well as enhance learning enjoyment and effectiveness. Additionally, collaborative games not only enhance the student's ability to work together effectively but also provide a more engaging and enriching learning experience, which has a positive impact on their overall learning.

The second way is that effective communication and information sharing in a collaborative learning environment contribute to a positive and enriching learning experience. According to Tran (2013), collaborative learning involves not only cooperating but also sharing goals, responsibilities, and inter dependency between students. The process of collaborative learning stimulates creativity and innovation. A teacher's journal provides concrete examples through discussions, collaborative sentence building, and error correction (Teacher Journal 2). While these activities focused on communication, promoting collective understanding, and collaborating on

challenges in the learning process, they also emphasized the importance of collaboration. As a result, research indicates that in a cooperative and collaborative environment, learners can enhance their cognitive processes and deepen their learning outcomes (Tran, 2013).

The third way is that active search for knowledge. As students explore on their own through the use of books, dictionaries, and smartphones, they can learn to explore independently. In Schrier's (2016) research, he stresses the importance of practical exploration and discovery to develop learners' problem-solving and creative insights. Through this method, students go beyond rote memorizing, which is typically associated with traditional language learning methods, and are encouraged to evaluate and apply their knowledge in real-life situations. During the process of actively searching for knowledge in Chinese language learning games, students are not only solving linguistic problems that arise but also gaining new insights that contribute to a deeper understanding of the content.

The fourth way is creating a meaningful language environment. An environment that uses game-based language learning is particularly noteworthy in that repetition and lexical memory are both involved. By actively participating in language games, students become familiar with a conscious and structured method of repetition, which builds a solid foundation for language acquisition. According to Section 4.3, students practiced their pronunciation and word meanings with their peers and the teacher, checked their understanding sometimes with them, and repeated words repeatedly. This repetition helps to memorize vocabulary and develop listening and speaking skills. In addition to improving vocabulary retention, the repetitive nature of this process reinforces the meaning of words. It is consistent with Liang's (2022) finding that repetition reinforces memory, self-corrects, strengthens linguistic relevance and creates lasting memories through the process of repetition.

In summary, collaborative gaming improves students' ability to work together effectively and provides a more engaging learning experience. Communication and information sharing within a collaborative learning environment contribute to positive

and enriching learning experiences. During this process, students can learn to explore and inquire on their own with the aid of tools such as books, dictionaries, and smartphones when using such an approach during play. In addition, in a meaningful language environment, students can enhance vocabulary retention and reinforce the meaning of words, enabling them to memorize vocabulary and improve their listening and speaking abilities.

5.3 RECOMMENDATION

This section offers recommendations to 3 groups: teachers, schools, and future researchers.

5.3.1 To Teachers

First of all, teachers need to understand their students' characteristics and learning needs, and then develop and implement effective teaching methods. Teachers can incorporate games into their teaching. In the classroom, a dynamic and interactive learning environment can be created by utilizing a variety of forms of games that cater to a wide range of learning preferences by engaging learners in interactive and engaging games that increase interest and engagement. Through the process of playing games, students are encouraged to participate actively, express themselves, and build confidence in their ability to learn languages. Secondly, teachers should take the initiative to learn new teaching tools. For example, the online games Kahoot, Wordwall, etc. The use of interesting graphics and soundtracks can attract the attention of students. As well as providing prompt feedback, these games enable students to identify and correct mistakes promptly. It is not only an effective way to improve learning efficiency but also serves as a complementary tool to traditional games.

5.3.2 To the School

Schools play a key role in supporting the implementation of game-based learning strategies. The importance of providing teachers with training programs on

effective game-based learning methods. In addition, schools should allocate resources to create educational games or activities that are aligned with Chinese language learning objectives as well as provide students with a Chinese language learning environment. By incorporating gaming into Chinese activities, students are motivated to gain a greater understanding of and exposure to Chinese, as well as teamwork and collaboration to enhance their problem-solving abilities.

5.3.3 To Future Researchers

Future researchers can contribute to the field by exploring different game formats in Chinese language learning. To identify which types of game-based learning are most effective, comparative studies can be conducted to analyze the effects of different game-based learning approaches on student outcomes. The effectiveness and sustainability of game-based learning should be assessed by longitudinal studies, including long-term language proficiency and retention studies. The potential transfer ability of game-based learning skills to other academic areas can also be investigated through the cross-disciplinary integration of game-based learning in Chinese language education.

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APPENDICES

APPENDIX A

CERTIFICATE OF APPROVAL BY ETHICS REVIEW

BOARD OF RANGSIT UNIVERSITY

COA. No. RSUERB2023-184

Certificate of Approval
By
Ethics Review Board of Rangsit University

COA. No.	**COA. No. RSUERB2023-184**
Protocol Title	**Game-Based Chinese Learning to Grade 11 Students in a Thai High School Context**
Principle Investigator	Cai Lu
Co-Investigator	**Asst. Prof. Dr. Ubon Sanpatchayapong**
Affiliation	**Suryadhep Teachers College, Rangsit University**
How to review	**Expedited Review**
Approval includes	**1. Project proposal**
	2. Information sheet
	3. Informed consent form
	4. Data collection form/Program or Activity plan
Date of Approval:	**28 November 2023**
Date of Expiration:	**28 November 2025**

The prior mentioned documents have been reviewed and approved by Ethics Review Board of Rangsit University based Declaration of Helsinki, The Belmont Report, CIOMS Guideline and International Conference on Harmonization in Good Clinical Practice or ICH-GCP

Signature.....................

(Associate Professor Dr. Panan Kanchanaphum)
Chairman, Ethics Review Board for Human Research

RSU-ERB
2 8 NOV 2023

Ethics Review Board of Rangsit University, 5th floor, Arthit Ourairat Building (Bldg 1) Rangsit University
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APPENDIX B

INTERVIEW QUESTIONS

Interview Questions

Pre-interview questions

1.How long have you been studying Chinese?

2.How interesting is Chinese? Do you like Chinese?

3.Do you think Chinese is difficult? Why?

4.What do you think is the most difficult part of learning Chinese?

5.When you learned Chinese, did you play games to learn it?

6.How much did games help you learn Chinese?

7.What kind of games did you enjoy most? Why?

8.In what way did games improve your Chinese?

9.What game helped you improve your Chinese in the past?

10.What do you expect from learning Chinese by using games?

Post-interview questions

1.What have you improved in learning Chinese so far?

2.In what way have games helped you learn Chinese?

3.What are the advantages of learning Chinese by using games?

4.Tell me what you learned from playing games in Chinese classes.

5.Suggest more games to be used in class.

6.What other games do you recommend to learn Chinese better?

BIOGRAPHY

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