

**A COMPARATIVE STUDY OF PRIMARY 4 STUDENTS'
ACADEMIC ACHIEVEMENT AND PERCEPTION OF LEARNING
CHINESE AS A FOREIGN LANGUAGE UNDER AN INQUIRY-
BASED LEARNING METHOD AT AN INTERNATIONAL SCHOOL
IN BANGKOK, THAILAND**

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Abstract: The objective of conducting this comparative research was to determine students' academic achievement in learning Chinese while being instructed under the teaching methodology of inquiry-based learning method in learning Chinese as a foreign language at an international school in Bangkok. How has learning under the inquiry-based learning method increased students' academic achievement and sufficiency for Primary 4 students, which prepared them sufficiently to pass their HSK (Hanyu Shuiping Kaoshi) Chinese proficiency test at their respective Chinese levels? This study examined both the effectiveness of the learning methodology and students' perception of their academic performance to determine how inquiry-based learning methods work in learning a foreign language. A pre-test and post-test were given to Primary 4 students in a Chinese class. The research was conducted from May 2020 to June 2020 in Chinese class. The topic was in Unit 1, "Greeting," which emphasized classroom activity, friends, and family. The lessons were conducted for four weeks, with 3 hours of class per week lasting for a total duration of 60 minutes. The sample size of this study was 18 students being instructed under the inquiry-based learning method. Results indicated that the student's academic achievement and performance in the Chinese language have increased in percentage under the inquiry-based learning methodology. The findings showed that the inquiry-based learning method results in higher achievement in students' academic performance. Students' perception of learning Chinese under the inquiry-based learning method was effective. Therefore, the findings of the study indicated a

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significant difference in gains instructed under the inquiry-based learning method at a significance level of .05 found in this study. Students achieved higher when exposed to inquiry-based learning methods in learning Chinese as a foreign language.

Keywords: Academic achievement in learning Chinese; Chinese as a foreign language; Hanyu Shuiping Kaoshi; Inquiry-based learning method;

Introduction

Chinese characters are made up of strokes, and learning to write these characters involves not only the number of strokes but also the order and the direction of each individual stroke. The approach of learning under the inquiry-based learning method will help students discover and answer their curiosity about how the Chinese characters have developed from ancient pictographic characters, which were largely based on things found in nature, to modern Chinese characters that we see today.

China's rise as the world's largest trading center and economic system has seen a parallel rise in the need for proficiency in the Chinese language. It is not surprising that there is paralleled growth in learning the Chinese language here in Thailand, as most of the Thais' ancestors are Chinese.

As technology advances, people can access more information and technology resources online. Teaching will not simply be focused on teachers becoming the resources. Compared to public schools in Thailand, international schools in Bangkok focus more on student-centered and inquired-based learning methods where students can use the resources they have to create, design, think, and solve problems as they do critical thinking.

The role of technology in teaching and learning Chinese characters are one of the most useful methods in teaching students in the 21st century (Zhan & Cheng, 2014). Online tools for language learning like Quizlet, Kahoot, Nearpod, online audio recording tools, videos, and podcasts are extremely useful in teaching and learning Chinese as a foreign language. Technology has become one of the world's most used resources. It is now used in education as seen in students' learning materials and assessments and language tests such as SAT Chinese subject test, AP Chinese Language and Culture Test, HSK (Hanyu Shuiping Kaoshi) test, and YCT (Youth Chinese Test). Chinese language teachers will have to use technology with standards in Chinese-language-teacher Education to guide students in their language achievement (Lin, Liu & Hu, 2013).

Chinese language learning has positively changed from the traditional method of learning, which was more difficult, expensive, and time-consuming. That does not necessarily mean that learning has become easy. Still, it has become more interesting and fun when the classroom is highly active while using an inquired-based learning approach which is interesting and fun for the students to learn out of the box. This change or transformation comes about largely because of technology.

From the Chinese language teacher's perception of technology and instructional use of technology in a course assessment, its effectiveness in the teaching and learning process toward students' academic attitude and academic achievement was effective (Liu, Lin & Zhang, 2013). Using technology in teaching increases students' interest in studying one of the hardest languages in the world, which has over 50,000 characters. Chinese has become one of the world's most popular languages and has been taught in international schools for non-native speakers around the world, including Bangkok, as China is home to one of the world's largest populations and is currently a good trading and business partner with Thailand.

The influence of technology on learning Chinese is mostly positive. According to recent studies, using technology seems to be a successful tool supporting teachers in implementing inquiry-based learning methods during Chinese language lessons. Such processes can provide students with more authentic learning experiences (Horng, 2014; Van der Heijden, 2013). It means that more of the study time was spent on activities that involve students' active participation. Technology as a teaching tool should help you increase access to learning material, offer helpful support, guide your studies, provide extended practice, and brings written communication within reach. The influence of technology plays a big role in supporting the learning experience to facilitate Chinese character achievement, known as Chinese words, which help students study character transition from pinyin (Liu & Olmanson, 2017).

This current study looks into inquiry-based learning methodology and compares the gains achieved in reading, writing, and listening in the learning progression of studying Chinese as a foreign language course for Primary 4 students at an international school in Bangkok. In addition, this study also looked into the perception and effectiveness of how students learn and interact in class under the inquiry-based learning method.

Research Objectives

Four research objectives have been formed to address the research problems.

1. To determine the levels of academic achievement in learning Chinese as a foreign language, before and after using the inquiry-based learning method, of Primary 4 students at an international school in Bangkok, Thailand.
2. To determine whether there is a significant difference in the gain in academic achievement in learning Chinese as a foreign language under the inquiry-based learning method, from the pre-test to the post-test, of Primary 4 students at an international school in Bangkok, Thailand.
3. To determine the levels of perception of learning Chinese as a foreign language, before and after using the inquiry-based learning method, of Primary 4 students at an international school in Bangkok, Thailand.
4. To determine whether there is a significant difference in the gain in the perception of learning Chinese as a foreign language, before and after using the inquiry-based learning method, of Primary 4 students at an international school in Bangkok, Thailand.

Theoretical Framework

This research study was conducted on the following theory: inquiry-based teaching theory and inquiry-based language learning constructivism theory.

Inquiry-Based Teaching Theory (Bruner, 1961: Wagner, 2012)

Another keyword for inquiry-based learning is "discovery learning," which depends on the concept that individuals can learn by exploring circumstances and challenges through social experiences, also known as task-based learning (Bruner, 1961). Task-based learning is where teachers give a meaningful task such as conducting an interview, visiting friends, or role-playing. This teaching theory is the opposite of having students memorize information from printed data and materials (Wagner, 2012).

Inquiry-Based Language Learning Constructivism Theory (Bruce & Davidson, 1996)

According to Jean Piaget (1972), Vygotsky (1978), and Jerome Brunner (1990), students learn from communicating their experiences with other peers instead of being transmitted by the teacher. Bruce and Davidson (1996) make this idea into the cycles as follows:

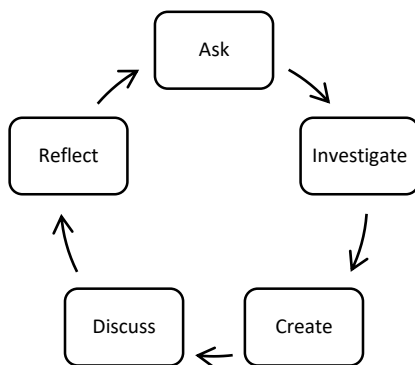


Figure 1. *The Cycle of Inquiry (Bruce & Davidson, 1996).*

A topic of the lesson is given for the students to form or create questions and build up what they want to know. Based on the question, students can investigate in order to find a theory related to the topic. This can be done through research on the internet, textbooks, readings, and asking other peers. After that, students will create something based on the topic, and they will try, draw, experiment, and explain their work. This learning concept was also conceded by the Chinese philosopher that says, "I hear, and I may forget. I see, and I will remember. I do, and I will be able to understand" (Silberman, 1999). This means that students should participate actively in the learning process so they can understand.

Conceptual Framework

Figure 2 delineates the conceptual framework for the study.

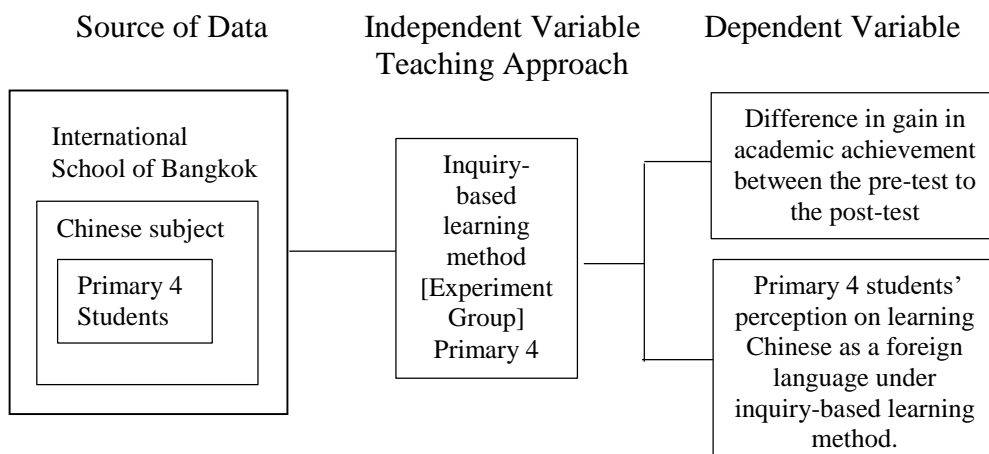


Figure 2. *Conceptual Framework for the Present Study.*

Literature Review

This section introduces some of the previous research studies on inquiry-based learning theory in learning a foreign language.

Lee (2014) implemented inquiry-based learning and teaching approaches in learning a foreign language to enhance the language writing and communication skills and the need to integrate the vocabulary and grammatical structure in the form of delivering through an inquiry-based learning activity.

Xu (2002) implemented the inquiry-based learning activities in Ontario of teaching and learning a foreign language in the classroom and developing the needs of a teaching faculty in organizing student inquiry and active learning.

Tofade et al. (2013) implemented inquiry-based learning. They found that students improved their answers in quality and quantity when they were asked open questions based on referential, which involve exchange and negotiation of meaning in real-life communication.

Whewell (2014) proposed and implemented the inquiry-based teaching theory, which has primarily been applied in teaching math and science. In the inquiry-based teaching approach, instructors used this theory to teach foreign languages to enhance the vocabulary, explore the grammatical structures, engage in the meaning, and discover the embedded cultural essence. The inquiry-based language learning adapted the scientific approach to finding the solution to teaching and learning problems.

Fauziati (2016) implemented the inquiry-based teaching theory in inquiry teaching benefits the learning of second language instruction in all aspects. One of the examples is the Indonesian curriculum in 2006 and 2013, which implemented inquiry-based language learning as a method in teaching and learning activities which proved that inquiry-based teaching benefits more in teaching a foreign language.

Methodology/Procedure

Population and Sample

This study's population sample comprised 18 students enrolled in the Primary 4 Chinese language course at an international school in Bangkok, Thailand, for a total of 18 Chinese language students.

Research Instrument

This study was conducted using a pre-test and post-test to measure students'

academic achievement, and questionnaires were conducted as a survey to measure students' perception of learning Chinese before and after using inquiry-based learning method approaches. In order to measure students' perceptions of learning Chinese before and after using an inquiry-based learning method, the survey version of Glasersfeld (1993); Parisi (2006) promotes the development of the learner's critical thinking skills of Student Perception on Learning under Inquiry-Based Learning Method was adapted in a Chinese language course.

The questionnaire is comprised of 10 items (Cronbach's $\alpha = .88$), all positively worded, organized into the following questionnaire (see Table 1).

Table 1. *Items Comprising the Questionnaire Used in the Present Study*

Item No.	Item statement
1	I can interact better with other students and teachers by discussing the ideas related to a class
2	I am more confident in expressing my ideas about the topic
3	I can reflect on thoughts and ideas to improve my learning goals
4	My ability to understand the topic was improved
5	I am encouraged to set my own learning goals
6	I can focus more on learning rather than just getting a passing mark
7	I was able to overcome test fears
8	I can use many learning strategies without limits
9	My critical thinking skills were enhanced to solve course-related issues
10	I had good response/advice to guide me in my learning process

Participants were asked to express their opinions on each item statement using a 4-point Likert-type scale (1= *strongly disagree*, 2= *disagree*, 3= *agree*, 4= *strongly agree*). The questionnaire was administered in English to the Primary 4 Chinese students at an international school in Bangkok, Thailand.

Research Findings

This section summarizes the findings from the data analysis performed on the collected data.

Finding From Research Objective 1

The finding of the first objective revealed that overall, Primary 4 students' academic achievement level increased by 94.09% in learning Chinese under the inquiry-based learning method.

Finding From Research Objective 2

The finding of the second objective revealed that overall, students' academic achievement compared to before and after the inquiry-based learning method demonstrated significantly better academic achievement at the significant level at $p = .05$.

Finding From Research Objective 3

The finding of the third objective revealed that overall, students' perception of learning Chinese under the inquiry-based learning methodology was interpreted as very effective in helping them achieve a higher academic score in learning Chinese as a foreign language subject.

Overall, the findings of this study have revealed great improvements in their Chinese language achievements for learning Chinese under the inquiry-based learning method. Therefore, inquiry-based learning methods can be successfully used to promote academic achievement and students' preference for learning Chinese as a foreign language.

Finding From Research Objective 4

The finding of the fourth objective revealed that overall, students' perceptions, compared to before and after the inquiry-based learning method, demonstrated significantly better academic achievement at the significant level at $p = .05$.

Discussion

This section discusses the findings obtained from the current study are discussed, placing such findings in context with previous studies. The discussion is presented and organized by variables.

Students' Academic Achievement

The study's findings showed that the levels of students' academic achievement in the pre-test and post-test taught under the inquiry-based learning method improved to an increase of 94.09%. The researcher chooses to do a research experiment on Primary 4 students because they fail Chinese at their level. What is the reason they fail Chinese at their level may be the lack of understanding, uninteresting topics, and hard vocabulary, which give them the lack to building up vocabulary they don't understand? To help to make lessons more active and interesting, the researcher implemented the inquired-based learning methodology in teaching Chinese as a foreign language. As a result, there was a big improvement in their learning to indicate that students did gain knowledge in their Chinese language class when instructed with the inquiry-based learning method. The increase in the academic achievement level is

definitely due to the class role-play, group work, class projects, class discussions, and reflection.

Students' Perception of Learning Chinese as a Foreign Language

The researcher surveyed Primary 4 students' perceptions of learning Chinese as a foreign language before and after the inquiry-based learning methodology. Students learning under the inquiry-based teaching method showed that the result is "very effective." It is effective because students prefer working in groups and role-playing in class. They do not want to always sit in a direct teaching classroom and do tasks more based on writing the vocabulary many times, reading, and listening. It is less effective when students demonstrate a high individual motivation towards academic achievement.

The researcher adopted the inquiry-based learning method in a Chinese language class, believing that this approach can increase students' engagement in Chinese class and develop their interest, leading to higher achievement scores. Therefore, all the lessons for this class were planned according to the AERO world language standards, which consist of the 5C's of communication, culture, connection, comparison, and communities.

It was a new learning method for these students as they were often treated with a traditional teacher-centered approach. It did not become an obstacle for the researcher to implement this method. Students were very cooperative and excited to learn the Chinese language differently. The lessons started with an open-ended question, allowing students to brainstorm by asking more questions regarding the assigned topics to seek answers, collect information, share knowledge and experience, build up creativity, and perform. Students had fun writing their script for their role-play and engaged in group activities and games, which allowed them to seek the information, understand, analyze, apply and be creative. This can be achieved by making students more thoughtful, more motivated, and more engaged in their inquiries.

According to A.P.J. Abdul Kalam's famous quote, "Educationists should build the capacities of the spirit of inquiry, creativity, entrepreneurial and moral leadership among students and become their role model in learning new things" (Kalam, 2016). The researcher knows the importance of this theory on the learning experience using inquiry-based learning. The responses were positive, with good feedback. Students enjoyed the class and were more engaged with the learning, working in groups and on individual projects. Students loved sharing ideas; they talked, laughed, and thought and cooperated with each other.

In conclusion, an increase in students' academic achievement was taught under an inquiry-based instructional approach, according to this study done at an international school in Bangkok, Thailand.

Recommendations

Based on the findings of this study, the following are some helpful recommendations for students, teachers, administrators, and future researchers whose work is related to teaching Chinese as a foreign language.

Recommendations for Students

The research study implied that Primary 4 students' perception of the teaching methodology has higher academic achievement and are more active in learning under the inquiry-based learning method. Therefore, in order to increase the class Chinese academic performance with motivation, implying inquiry-based teaching method will be an advantage.

Recommendations for Teachers

According to the finding, students with low performance might not fully understand the lessons' context clearly, which may be the teaching methodology's effect. The result of this study shows that learning under inquiry-based learning methods helps students with the low performance boost their understanding and performance a lot better than instructed under the teacher-centered learning method for Primary 4 students.

Recommendations for Parents

Some suggestions for parents who want to help their children in learning Chinese as a foreign language. Direct memorization of the vocabulary can be easily forgotten without fully understanding the meaning and its sentence patterns. Doing practice in an inquiry way, like asking questions, will be one of the best options to enhance students' understanding and eagerness to find the answers.

Recommendations for Future Researchers

For future researchers who would like to continue research on the inquiry-based learning methodology in learning a foreign language. More variables on implementing an inquiry-based learning method for learning Chinese as a foreign language in future studies could be added to learning a second foreign language to provide and deliver a deeper vision of improving Thailand's foreign language education.

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