

The Role of Project-Based Learning in Promoting Preservice Teachers' Communicative Capabilities

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Received: October 2, 2022

Accepted: November 15, 2022

Online Published: November 23, 2022

doi:10.5539/jel.v12n1p52

URL: <https://doi.org/10.5539/jel.v12n1p52>

Abstract

This research aimed to explore the impacts of project-based learning on promoting preservice teachers' communicative capabilities. A survey research design was employed to collect data, using an online questionnaire consisting of seven closed-ended and four open-ended questions. There were two target groups of preservice teachers who were second-year teacher trainees and enrolled on the course of Teaching Chinese as a Foreign Language. The first target group consisted of 23 preservice teachers from the Faculty of Education, Khon Kaen University, Thailand, while the second target group consisted of 25 preservice teachers from the Faculty of Arts, Southwest University, China. Both target groups attended the project-based learning lessons for 15 cycles in the first semester of the academic year 2021. The quantitative results indicated that all participants' Chinese language communicative capabilities in listening and speaking skills were increased, from a total score of 45.47 to 68.25. Besides, the quantitative results showed that their vocabulary acquisition and communication skills improved, from a mean score of 2.62 to 3.33 and 2.67 to 3.29, respectively. In addition, the qualitative results of the 25 preservice teachers from Southwest University revealed that project-based learning is a successful teaching approach, because it provides preservice teachers with an opportunity to develop their Chinese language knowledge and skills through the project engagement set around challenges and problems in the real world. Finally, the qualitative results of the 23 preservice teachers from Khon Kaen University revealed that project-based learning has improved their communicative capabilities in understanding questions and using modern media in their teaching management.

Keywords: Chinese language, communicative capabilities, preservice teachers, project-based learning, vocabulary acquisition

1. Introduction

According to the Nuffield Foundation (2000, p. 14), the Chinese language is becoming more prominent for a number of reasons. China has played a prominent role as one of the leading countries in economics, not only in Asia but also in the world, making knowledge of the Chinese language important for economic growth (Kanoksilapatham, 2011). Moreover, many Thai people who have Chinese ancestry, owing to intermarriage between Chinese and Thais. This contributes to the role of learning Chinese, to support and sustain cultural understanding and practices. Following this line of reasoning, along with English, Chinese has become one of the subjects that make up secondary school students' requirements in Thailand since 1998 (Kanoksilapatham, 2011). Furthermore, the views of Thai students in higher education are rooted in ideas of harmonious hierarchical relationships, which creates a nationalist educational culture (Zilli, 2019). This has influenced Thai pedagogy as a feature of cross-cultural student integration that emerges in any of the Thai higher education institutions and their policy (Waters & Day, 2022). Therefore, demand for the Chinese language has increased and over 300,000 students are studying the Chinese language in Thailand each year (Waters & Day, 2022). According to Day and Skulsuthavong (2021), the fact that student-led protests over freedoms introduced via the Internet have shaped significant social transformation is certainly true in Thailand, as of 2021.

Project-based learning is important and beneficial for all teachers, either preservice or in-service teachers, because it encourages them to address challenging problems or questions through a reflective process, developing and devising solutions (Walker, 2018). Therefore, university lecturers should utilize project-based

learning, which requires a focus on developing communicative skills, and promoting agency and self-directed learning that can help their teacher trainees, who are the preservice teachers, to identify the career paths that interest them. In other words, project-based learning actively engages preservice teachers in their learning and puts them in charge. It prepares preservice teachers for the real world and the challenges that they will face later in the teaching profession (Vega, 2012).

Kermansharchi (2018) defined project-based learning as non-traditional teaching methods to awaken students' curiosity and creativity, and motivate them to participate in class activities. Hudáková and Papcunová (2019) added that the teaching methods used in project-based learning are mainly focused on the activity and independent work of students, who gradually move from the passive method of acquiring knowledge, such as interpretation and explanation, to more active methods of acquiring information and become more or less independent implementers of their own education. Chen and Yong (2019) further indicated that project-based learning has a medium to large positive effect on students' academic achievement, but cannot completely replace traditional education. This is because students must work to solve and evaluate a problem (Tsybulsky & Muchnik-Rozanov, 2019) and present the results to an audience, which allows them to acquire the knowledge and skills needed for life (Chen & Yong, 2019). Therefore, project-based learning is characterized by students' autonomy, cooperation, communication and reflection on real life practices (Kokotsaki et al., 2016). In this study, the researchers defined project-based learning as a teaching method that allows preservice teachers to learn by searching solutions, asking questions, debating ideas, designing plans, and communicating with their peers, either locally or in mainland China, in promoting cooperation between non-native speakers and native speakers, with the lecturer acting as a guide during the project.

Project-based learning has other positive advantages. Chu et al. (2017) stated that it can help to develop pre-service teachers' critical thinking and problem-solving, interpersonal communication, information and media literacy, cooperation and leadership, while Duchovicova et al. (2018) emphasized the advantages of solving problems in a creative way, with flexibility, and originality. As a result, project-based learning cannot be judged solely in terms of effectiveness; it also helps to develop preservice teachers' abilities, skills, attitudes and values, all of which enable them to understand the challenges of a changing global economy (Zat'kova, 2015). Consequently, preservice teachers who are in project-based learning environments are well prepared with soft skills—such as collaboration, communication, critical thinking, and creativity - for the ever-changing workplace of the future, because they know how to manage uncertainty, take responsibility for their learning and solve complex problems (Maros et al., 2021). This is reinforced by the ideas of Hudáková and Papcunová (2019) in regard to the aim of project-based learning to prepare preservice teachers who are higher education students, not only for acquiring knowledge, but also for mastering the kind of practical skills and competencies needed for finding employment in their professional lives.

Communicative capabilities of teachers are well known as a social distance by the type of existing relationship between teachers and students of verbal exchange, while adequate development of communication, perceived as a process of sending and receiving the information, requires the existence of a relational balance (Suciu, 2014). The context of educational communication is described by the presence of a vague relationship between the interlocutors, that is the sender (university lecturer) who owns the knowledge that should be sent to the receiver (teacher trainee), as defined by Suciu (2014). The teacher's cognitive superiority should be rewarded by leading an affective component to communicate with a view to accomplishing the balance of the relationship between the university lecturer and teacher trainees, and implicitly the success of the communication process according to the transfer of new knowledge within the specific situation of the educational system (Mohd Yusof & Halim, 2014).

In addition, theoretical and empirical examination in the specialization of communicative language teaching resulted in the development of several models of communicative competencies (Bachman, 1990), which are presently employed worldwide. The core principle underlying communicative language teaching is the concept of "communicative capabilities", which was initially defined by Hymes (1972) as the aspect of an individual's language competence that enables him or her to convey and interpret messages, as well as to negotiate meanings interpersonally within precise settings. Therefore, university lecturers of a second language teach the target language more effectively through teaching and participating in meaningful classroom communication with higher education students. This concept of language learning explains the emergence of the communicative approach to second language teaching over the last few decades, whose pedagogical aim is to develop higher education students' communicative capabilities, for example, the ability to use the linguistic system in an effective and appropriate method (Mohd Yusof & Halim, 2014).

The Chinese language is one of the second languages in Thai higher education programs. It is a second language

minor program which aims to provide systematic Chinese language training to students from the perspective of contemporary theories of language study. On top of that, the curriculum design of the program also features applications of current theories of linguistics in language acquisition and cognitive science, as well as culture and society, to nurture students' language proficiency with substantive knowledge about the lexicon and grammar of the Chinese language and also enhance students' understanding of language as a window into the human mind, their bilingual and multilingual awareness. Hence, university lecturers' use of project-based learning to sharpen their sensitivity to the complexity of the Chinese language is encouraging improvements in Chinese language acquisition (Bradley, 2007).

The above literature review demonstrated the importance of project-based learning to be utilized by university lecturers as a teaching strategy, particularly in teaching a second language. Therefore, this research aimed to collect preservice teachers' perspectives on project-based learning and its impacts on their communicative capabilities in Thailand's higher education context. The specific research questions are as follows:

- 1) What are the levels of communicative capabilities of a total of 48 preservice teachers (23 Thai + 25 Chinese who were second-year trainees and studying the course Teaching Chinese as a Foreign Language) before and after they attended the 15 cycles of project-based learning practices?
- 2) What are the levels of the 48 preservice teachers' (23 Thai + 25 Chinese who were second-year trainees and studying the course Teaching Chinese as a Foreign Language) satisfaction assessments on project-based learning practices?
- 3) What are the 25 Chinese preservice teachers' points of view on project-based learning practices?
- 4) What are the 23 Thai preservice teachers' points of view on the impacts of project-based learning on their communicative capabilities?

2. Method

2.1 Research Design and Research Instrument

A survey research design was employed to collect the primary data from preservice teachers, to gain a greater understanding of individual and group perspectives relative to project-based learning in promoting preservice teachers' communicative capabilities. The survey research design, using online forms, was undertaken for a common reason: they are easily accessible ways for participants to share and demonstrate their perspectives about their satisfaction with project-based learning and its relationship with communicative capabilities. According to Mills (September 13, 2021), the survey research design allows for the researcher to gain a better understanding of different groups of people, help to identify any problems or concerns participants have, and leads to the identification of solutions based on the identified issues. Therefore, the researchers chose this survey design, as it is a good method to gauging general perspectives about project-based learning in teaching the Chinese language to two different groups of students.

The set of questionnaires consisted of seven closed-ended questions and four open-ended questions, where each question was designed to obtain a specific piece of information (Mills, September 13, 2021). The first section of the questionnaire was a satisfaction survey that was used to examine project-based learning in terms of the six aspects, namely contents, time management, effectiveness, planning, learning atmosphere, and improvement - that university lecturers provided to meet their needs and requirements. The second section was open-ended questions related to the communicative capabilities in Chinese of preservice teachers who have attended the 15 cycles of project-based learning practice as follows:

- How do university lecturer's Chinese speaking speed, vocabulary use and accent impede students' communication during project-based learning activities?
- If you have problems understanding Chinese questions during project-based learning, how do you solve these problems?
- After you have attended the project-based learning activities, how do you use modern media - such as live or video production - to improve your Chinese language skills?
- After you have attended the project-based learning activities, how do you use modern media - such as live or video production - to improve your Chinese language teaching management?

2.2 Research Participants

The researchers employed a non-probability sampling technique that is purposive sampling, in which two groups of preservice teachers were selected because they had similar characteristics. The two target groups were 23 and

25 preservice teachers who were second-year trainees in the Faculty of Education, Khon Kaen University, Thailand, and the Faculty of Arts, Southwest University, China, respectively, and in their first semester of the academic year 2021. Both target groups were studying the course Teaching Chinese as a Foreign Language and attending project-based learning practices for a duration of 15 weeks for a semester. In other words, the research participants were selected for these three reasons, namely, second-year teacher trainees or preservice teachers attended the course Teaching Chinese as Foreign Language, and attended classes using project-based learning as a teaching approach not less than 15 times.

The researchers believed that the selected participants could provide the best information to answer the research questions presented above. The purposive sampling was particularly useful in this mixed method, as participants not only responded to closed-ended questions, but also to open-ended questions, in the questionnaire. In this line of reasoning, the researchers needed to find information-rich cases that were the 48 teacher trainees and made the most out of limited resources as very few courses are taught in the Chinese language in Thailand's higher education institutions.

2.3 Data Collection and Data Analysis

The researchers used mixed methods to clarify the results from the initial method of data collection. Mixed methods were employed in a combination of precise measurements, for example, the mean score from the seven closed-ended questions along with four open-ended questions that provided meaningful details of project-based learning practices and the related impacts on participants' communicative capabilities. As a result, the key advantage of using mixed methods was that the qualitative details enhanced the quantitative data sources that involve conclusions (Gay, Mills, & Airasian, 2009). Data were collected from the 48 participants for 15 cycles immediately after their presentation sessions, using a toolkit consisting of a rubric score that measured their Chinese language communicative proficiencies assessment in listening and speaking skills and a satisfaction assessment form. After the 48 teacher trainees had finished attending the course Teaching Chinese as a Foreign Language, they were required to respond to a questionnaire consisting of seven closed-ended questions and four open-ended questions. This kind of data collection helped the researchers to gather, measure, and analyze accurate data from a variety of relevant sources, to find answers to the research questions and evaluate the research outcomes.

Descriptive statistics—namely, mean score and standard deviation—were used to present quantitative descriptions in regard to preservice teachers' levels of satisfaction with project-based learning in a manageable form (Gay et al., 2009). The mean score was the average of all values in the target group, added together, and then divided by the total number of questions in the group. To calculate the Z-score, the mean score was subtracted from each of the individual data points and the result divided by the standard deviation. The results of zero show the point and the mean equal (Gay et al., 2009). A five-point Likert scale was used in the three research instruments mentioned above, namely a rubric form for measuring Chinese language communicative capabilities, a satisfaction assessment tool and a questionnaire. These instruments were used to measure the 48 preservice teachers' interpretations, ranging from the lowest to the highest levels. Table 1 elucidates the identification of the five levels of variables that were classified in accordance with the mean score range (Glass & Hopkins, 1984).

Table 1. Interpretation of variable level based on the mean score

Mean Score Range	Interpretation
4.50–5.00	Highest
3.50–4.49	High
2.50–3.49	Medium
1.50–2.49	Low
1.00–1.49	Lowest

On the other hand, content analysis was used to analyze the qualitative data derived from the four open-ended questions. Content analysis was a research tool used to determine the presence of certain words, themes or concepts within some given qualitative data. Then, the researchers used content analysis to quantify and analyze the presence, meanings and relationships of certain words, themes or concepts. The researchers utilized the clinical-qualitative content analysis technique comprising of seven steps: (1) Editing material for analysis; (2) Floating reading; (3) Construction of units of analysis; (4) Construction of codes of meaning; (5) General refining of the codes, and the construction of categories; (6) Discussion, and (7) Reflexivity proposed by

Faria-Schutzer et al. (2019) to analyze the qualitative data.

3. Results

All 48 participants responded to all three research instruments during the 15 cycles of teaching the course of Teaching Chinese as a Foreign Language using project-based learning, giving a response rate of 100 percent. The results are presented according to the research questions outlined previously. The initial result demonstrates the mean discrepancies in communicative capabilities before and after the practices of project-based learning. This is followed by a satisfaction assessment on project-based learning practices. Finally, the impacts of project-based learning in promoting respondents' communicative capabilities were qualitatively reported from Chinese and Thai preservice teachers' perspectives. The first target group consisted of 23 Thai preservice teachers who were labeled as PT1 to PT23, while the second target group comprised of 25 Chinese preservice teachers who were labeled as PC1 to PC25.

3.1 Results of Preservice Teachers' Communication Capabilities Before and After Project-based Learning Practices

The result of this study indicate that the total scores obtained from the rubric that measured the 48 respondents' Chinese language communicative capabilities in listening and speaking skills increased from 45.47 to 68.25 before and after they attended the 15 cycles of project-based learning practices. On top of that, the results showed that respondents' vocabulary acquisition and communication skills improved tremendously from a mean score of 2.62 to 3.33 and 2.67 to 3.29, respectively after they attended the 15 cycles of project-based learning practices. Table 2 displays the mean score and total scores of the 48 participants.

Table 2. Results of preservice teachers' communicative capabilities before and after the project-based learning practices

Communicative Capabilities	Total Respondents	Project-based Learning	
		Before (Mean score)	After (Mean score)
Vocabulary acquisition	48	2.62	3.33
Communication skills	48	2.67	3.29
Average total score	48	45.47	68.25

3.2 Results of Preservice Teachers' Satisfaction Assessment on Project-based Learning Practices

Referring to Glass and Hopkins' interpretation (see Table 1), the results of the research indicated that the 48 participants were at the highest satisfaction levels towards the six aspects of project-based learning practices – namely, contents, time management, effectiveness, planning, learning atmosphere, and improvement – that the university lecturers provided to meet their needs and requirements. Considering the first order, the researchers found that the highest level was in the learning atmosphere and improvement that university lecturers provided to meet their needs and requirements (mean score = 5; standard deviation = 0.00). This implies that all the preservice teachers, regardless of whether they were native speakers or not, perceived positively and were satisfied with the learning atmosphere and improvement that they gained while they were learning using project-based learning as a teaching approach. Moreover, the other four aspects were found at the highest satisfaction levels too; for example, content, time management, effectiveness, and planning (mean score = 4.96; standard deviation = 0.02). The overall mean score for preservice teachers' satisfaction level towards project-based learning practices was at the highest level too (mean score = 4.97; standard deviation = 0.02). The results of the descriptive analysis to compare the mean scores and standard deviations of preservice teachers' satisfaction with project-based learning practices are illustrated in Table 3.

Table 3. Results of preservice teachers' satisfaction assessment on project-based learning practices

Aspects of Project-based Learning	Satisfaction Level		Interpretation
	Mean Score	Standard Deviation	
Contents of learning	4.96	0.02	Highest
Time management	4.96	0.02	Highest
Effectiveness	4.96	0.02	Highest
Planning	4.96	0.02	Highest
Learning atmosphere	5.00	0.00	Highest
Improvement provided	5.00	0.00	Highest
Overall	4.97	0.02	Highest

3.3 Qualitative Results of Chinese Preservice Teachers' Points of View on Project-based Learning Practices

The qualitative results of 25 respondents from the Faculty of Arts, Southwest University, China provided some additional suggestions to improve project-based learning as follows:

"I highly appreciated the Thai lecturer and our course mates from Thailand. The project-based learning has successfully provided us with very good opportunities to learn more about Thailand's culture. Moreover, Thai course mates are very helpful and cooperative" (PC3).

"I hoped that we can start face-to-face interactions in conducting project-based learning activities, that must be more interesting" (PC5).

"I found that all the Thai course mates' Chinese language communicative proficiency levels were excellent. They do not look like students who have been learning the Chinese language for only two years. All the Thai course mates seemed to be very hardworking and the university lecturer was also very serious in teaching us using project-based learning" (PC7).

"Since there is no problem at all for Thai course mates in their communicative capabilities, I hope that we can have more project-based learning like this in the future, so that we can have more cultural exchange activities" (PC15).

"What I liked the most was the self-developed presentation to introduce Thailand's culture. I felt that that was a very creative idea. However, I would like to suggest that putting more words to explain and adding some values into it, would be clearer and better" (PC17).

"More details or deeper contents would be more challenging and interesting for us to learn" (PC20).

The above qualitative results revealed that project-based learning is a successful teaching approach in higher education institutions, particular in teaching Chinese as a second language, because it is an instructional approach designed to provide higher education students with an opportunity to develop knowledge and skills through their engagement in the projects that are set around challenges and problems they might face in the real world.

3.4 Qualitative Results of Thai Preservice Teachers' Communicative Capabilities After Attending Project-Based Learning Practices

The main purpose of the four open-ended questions with 23 respondents from the Faculty of Education, Khon Kaen University, Thailand was to obtain their views regarding the impacts of project-based learning in promoting their communicative capabilities. The verbatim responses explicitly demonstrated the impacts of project-based learning practices as follows:

3.4.1 The Impacts of University Lecturer's Chinese Speaking Speed, Vocabulary Used, and Accent Impede their Communication during Project-based Learning Activities

"My lecturer speaks with a Chinese accent. Her speaking speed is too fast, with a lot of unfamiliar vocabulary" (PT2).

"Sometimes the Internet is unstable, and the limitations of the ZOOM program mean the project-based learning is not smooth" (PT4).

"I cannot understand what my Chinese course mates said, because they are native speakers and their Chinese accent is very difficult for me to understand" (PT5).

"I know very little vocabulary; therefore, I cannot communicate with my Chinese course mates in the Chinese language. I find it hard to explain or convey my message appropriately" (PT 12).

The above qualitative results revealed that the majority of Thai preservice teachers were at the lower levels of Chinese Language communicative capability at the initial stage. Their lecturer's speaking speed, the vocabulary used and their accent were the factors that hindered them in learning the Chinese language.

3.4.2 The Methods that Preservice Teachers Used to Solve the Problems When They Could Not Understand Chinese Questions

"I asked my lecturer to speak again at a slower speed, so that it would be easier for me to understand" (PT1).

"I seek help from my friend to translate for me" (PT10).

"Consult with a group of friends who are from China" (PT20).

“I used the translator app and sometimes I ask my friend” (PT21).

The qualitative results above show that most of the Thai preservice teachers sought help from their lecturer or Chinese course mates who are native speakers. Some of them used translation applications to assist them in understanding the questions and finding related solutions.

3.4.3 After Preservice Teachers Attended the Project-based Learning Activities, How Did They Use Modern Media to Improve their Chinese Language Skills?

“I learned a lot of new vocabulary through project-based learning, such as the vocabulary for the ingredients in a recipe” (PT3).

“I improved in speaking the Chinese language on my own, I found myself well developed in the Chinese language” (PT6).

“I can practice speaking the Chinese language more frequently by using media for presentation” (PT7).

“My Chinese language proficiencies have been improved because I watched Chinese drama series and listened to Chinese songs. These activities helped me to improve my language skills” (PT8).

The above qualitative results indicated that Thai preservice teachers improved tremendously in vocabulary acquisition, speaking and presentation skills using modern media after they attended the 15 cycles of project-based learning practices.

3.4.4 After Preservice Teachers Attended the Project-based Learning Activities, How Did They Use Modern Media to Improve their Chinese Language Teaching Management

“I learned how to use interesting activities to attract my students’ interests in learning the Chinese language” (PT9).

“I learned many new teaching methods, such as Live Chat or talking to native speakers” (PT11).

“I knew how to use modern and advanced technology to develop my teaching and learning management” (PT13).

“I developed my teaching management plan by combining some graphic, photo and video clips so that my students could see and listen via Chinese language video materials” (PT14).

The researchers recorded the above qualitative results, as Thai preservice teachers were found to have greatly improved by using modern media in their teaching management. For example, they knew how to apply interesting learning activities, use advanced technology to design their lessons and use various technological platforms to reach their students.

4. Conclusion

The key results derived from this research imply that project-based learning is a successful teaching approach for improving preservice teachers’ communicative capabilities, particularly in teaching a second language at higher education institutions. If we are preparing our future teachers for success in the teaching profession, we need to prepare and train preservice teachers for a project-based world. Therefore, university lecturers must always include examples of real-world applications to reinforce the conviction among preservice teachers that they can break down problems into their component parts, process the problem and implement a solution when they relate project-based learning benefits to preservice teachers (Maros et al., 2021).

In addition, the research breaks new ground in educational research by exploring the preservice teachers or teacher trainees from both native speakers and non-native speakers on project-based learning as a teaching strategy, through a reliable and valid questionnaire. The quantitative and qualitative results show that preservice teachers have a positive perception of project-based learning practices. As a consequence, the researchers provide some recommendations for conducting effective project-based learning. Firstly, preservice teachers need to be effectively guided and supported, by emphasizing effective time management and self-management, including productive use of technological resources. Finally, university lecturers need regular support through networking and professional development opportunities.

Acknowledgments

The authors gratefully acknowledge the use of service and facilities of the Faculty of Education, Khon Kaen University, Thailand.

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