



## OPEN ACCESS

## EDITED BY

Chi Cheng Wu,  
Kun Shan University, Taiwan

## REVIEWED BY

Farzaneh Shakki,  
Golestan University, Iran  
Berrington Ntombela,  
University of Limpopo, South Africa

## \*CORRESPONDENCE

Jiraporn Chano  
✉ jiraporn.j@msu.ac.th

RECEIVED 18 March 2023

ACCEPTED 28 June 2023

PUBLISHED 14 July 2023

## CITATION

Luo M, Chano J, Chittranun T, Shu Y and  
Nithideechaiwarachok B (2023) The  
development of an instructional model to  
promote Chinese reading and writing skills for  
university students.  
*Front. Educ.* 8:1189016.  
doi: 10.3389/educ.2023.1189016

## COPYRIGHT

© 2023 Luo, Chano, Chittranun, Shu and  
Nithideechaiwarachok. This is an open-access  
article distributed under the terms of the  
[Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/).  
The use, distribution or reproduction in other  
forums is permitted, provided the original  
author(s) and the copyright owner(s) are  
credited and that the original publication in this  
journal is cited, in accordance with accepted  
academic practice. No use, distribution or  
reproduction is permitted which does not  
comply with these terms.

# The development of an instructional model to promote Chinese reading and writing skills for university students

Menglan Luo<sup>1</sup>, Jiraporn Chano<sup>2\*</sup>, Thatchai Chittranun<sup>3</sup>,  
Yaping Shu<sup>1</sup> and Bussayarat Nithideechaiwarachok<sup>4</sup>

<sup>1</sup>Department of Thai and Oriental Languages, Faculty of Humanities and Social Sciences, Maharakham University, Maharakham, Thailand, <sup>2</sup>Department of Curriculum and Instruction, Faculty of Education, Maharakham University, Maharakham, Thailand, <sup>3</sup>Department of Educational Administration, Faculty of Education, Maharakham University, Maharakham, Thailand, <sup>4</sup>Department of Liberal Arts and Education, Faculty of Interdisciplinary Studies, Khon Kaen University, Nong Khai Campus, Khon Kaen, Thailand

Because of the expanding global popularity of the language, more Thai colleges and universities have begun to offer Chinese language lessons in recent years. Yet, Thai teachers and students continue to struggle with how to teach and improve Chinese reading and writing skills. This research aimed to develop an instructional model based on second language acquisition theory to promote Chinese reading and writing skills for university students in the northeast of Thailand and study the results of the implementation. The participants were fifty second-year students majoring in Chinese from the faculty of humanities and social sciences of a public university. The instruments were an expert evaluation form, lesson plans, self-study reading quizzes, Chinese reading skills tests, a Chinese writing skills assessment form, and a questionnaire. Content analysis, mean, and also standard deviation were used to analyze the collected data. Thus, the findings revealed that the developed instructional model had the highest level of quality and appropriateness, which consisted of five components, including syntax and sequence, the social system, the principle of reaction, the support system, and the effect of the instructional model. The results of the implementation revealed that students' Chinese reading and writing skills had improved, and the student's attitudes toward learning with the developed instructional model were at a very high level. It is believed that this research could be beneficial for second-language Chinese students and teachers as well as other relevant parties involved in international Chinese education and research.

## KEYWORDS

instructional model, Chinese as a second language, reading skills, writing skills, university students

## 1. Introduction

Due to the importance of learning Chinese for Thai people, which is in line with a 20-year national development strategy of the National Education Plan 2017–2036 of Thailand, it is necessary to cultivate high-quality native Chinese teachers while reducing its reliance on volunteer Chinese teachers from China ([Office of the Education Council, 2017](#)). According to the results of a research study for the development of Chinese language teaching and learning

management system in Thailand's Chinese studies center at the Institute of Asian Studies of Chulalongkorn university, Thai students studying Chinese in higher education are not proficient in using the language (Wasinanon, 2016), especially in reading and writing which are not up to the standards that have been set (Luo et al., 2022). Consequently, for the current teaching and study of Chinese in higher education, reading and writing abilities should be prioritized (Zhong, 2019).

The researcher discovered numerous issues and challenges when teaching Chinese reading and writing abilities as a teacher with 10 years of experience in the northeast of Thailand. Also, learning Chinese for Thai students is different from learning their first language or mother tongue. Apparently, it should be supported and based on the second language acquisition theory, which can offer directions for the effective teaching and learning of Chinese as a second language (Liu, 2016). According to a study by Luo et al. (2022), the input hypothesis, the affective-filter hypothesis of the monitor theory, and the contrastive analysis hypothesis are relevant theories and recommendations for improving Chinese reading and writing abilities. The primary elements influencing Chinese major students' reading and writing abilities in the northeast of Thailand included vocabulary, grammar, language environment, attitude, motivation, and anxiety.

There is currently little research being done on the use of the Chinese teaching paradigm in Thailand's higher education, studies that explicitly target enhancing reading and writing abilities in Mandarin as a second language and are based on the second language acquisition theory. Therefore, there are two main questions to answer in this study. (1) What are the characteristics of the developed instructional model based on second language acquisition theory to promote Chinese reading and writing skills for university students in the northeast of Thailand? and (2) What are the results of the implementation of the developed instructional model? Derived from these questions, the objective of this study is to develop and implement an instructional model based on second language acquisition theory to promote Chinese reading and writing skills for university students in the northeast of Thailand.

## 2. Literature review

### 2.1. Instructional model

In models of teaching, Joyce et al. (2014) defined the teaching model as a plan used to create an environment in teaching and learning, which is a teaching guide for teachers to assist students in gaining knowledge, ideas, skills, values, ways of thinking and expressing easily and effectively. Additionally, the teaching model of Joyce et al. (2014) has five key components, namely syntax and sequence, social system, principle of reaction, support system, and effect of models of teaching. Furthermore, according to Tumthong (2016), an instructional model or teaching model refers to the practical model for teaching and learning with a specific purpose, which has a process of systematical design and development by using philosophies, principles, theoretical concepts, or basic beliefs. Besides, the design and development of an instructional model should include the process of basic information study, defining principles, setting guidelines, evaluation and improvement. Also, theories and principles,

orientation, syntax, social system, principles of reaction, support system, application, and instructional and nurturing effects should be included in the presentation of the development of an instructional model. In this study, theories and principles, objectives, syntax and sequence, the social system, the principle of reaction, the support system, the effect of the instructional model, and application were accommodated in developing the instructional model.

### 2.2. Reading skills in Chinese as a second language

Reading is the process of linguistic perception and communication between the reader and the author (Xv, 2007), as well as a complex high-level cognitive behavior in which the reader uses the information of the author's written symbols to stimulate and adjust the existing cognitive structure through comparison, association, reasoning, prediction and judgment (Wang and Chen, 1997). In teaching and learning Chinese as a second language, reading is a crucial way to acquire knowledge and information. Hence, practicing reading skills is an essential part of improving language skills, including reading comprehension and reading techniques from characters, words, sentences, paragraphs, and articles, especially paying attention to reading at the article level (Zhao, 2016a,b).

Yang (2010) proposed three methods for testing Chinese reading skills as a second language: multiple choice, true or false judgment, and briefly answering questions. In addition, the selection and design of reading materials should have the following characteristics, such as appropriate text length, diverse themes, be related to daily life, moderate difficulty, novel content, and conform to the trend of the times. In this study, the Chinese reading skills test as pre-test and post-test was synthesized from the International Curriculum for Chinese Language Education of Center for Language Education and Cooperation (2014): TOCLCI and the Chinese Language Proficiency Test (Hanyu Shuiping Kaoshi: HSK) from 2020–2021.

### 2.3. Writing skills in Chinese as a second language

Writing is a composing process by which the author conveys information, opinions, or intents by using strategies and techniques of expression through written communication (Zhang, 2006). In the same way, writing is an opinion expressed in a private language (Zhao, 2016a,b). Writing in Chinese as a second language has several levels, including Chinese character transcription, word formation, sentence construction, paragraph writing, and essay writing (Lv, 2007). According to Zhai (2010), writing in Chinese as a second language requires knowledge of the language system, which includes using grammar correctly and vocabulary appropriately depending on the context, knowledge of creating articles, which entails understanding the logical relationship between sentences and paragraphs, fundamentals of Chinese writing, which include using punctuation correctly, and writing styles appropriate to different types of essays.

Yang (2010) proposed that formative evaluation with an analytic scoring rubric is a suitable method for assessing Chinese writing skills in Chinese as a second language. In this study, the Chinese writing skills assessment scale form was used to evaluate students' writing

skills from eight dimensions, including the number of Chinese characters, writing the characters correctly, using the vocabulary correctly and appropriately, composing sentences correctly in Chinese grammar, using punctuation correctly, clear content and expressive meaning, sentences and paragraphs are logically connected, and there is variety in sentence construction.

## 2.4. Attitude

Attitude is a person's expression towards various stimuli. As [Good \(1995\)](#) stated that attitude is the readiness to act in a certain way, which could be entering or escaping a particular situation, person, or something. Furthermore, attitude consists of three components, namely, a cognitive component, an affective component, and a behavioral component ([Wongsanut, 1991](#)). In the study, the cognitive component of attitude toward learning with the developed instructional model means students' perception and understanding of the content or facts, which is a reason to evaluate the developed instructional model ([Wongsanut, 1991](#)). Thus, the affective component of attitude toward learning with the developed instructional model means students' feelings or emotions about the developed instructional model, which can be expressed as satisfied or dissatisfied, like or dislike, good or bad ([Esornpreeda, 1980](#)). Hence, the behavioral component of attitude toward learning with the developed instructional model means readiness ([Wongsanut, 1991](#)) or action tendency ([Esornpreeda, 1980](#)) in which students behave or respond to the developed instructional model in the direction of supporting or opposing.

[Chookhampang \(2008\)](#) stated that the measurement of the mind could be done in a variety of ways, such as observations, interviews, rating scales, and situational measures. Undoubtedly, among them, the rating scale was the most popular method.

## 2.5. Sociocultural theory

The sociocultural theory of Vygotsky is a psychological theory that studies the cognitive development of a person in society and emphasizes that communicative activity plays a significant role in the development of psychology ([Susan, 2008](#)). According to the concept of Vygotsky's sociocultural theory, cognition is an experience that comes from all contexts, including history, society, material, and culture. Therefore, experience and interactions are essential in the development of cognition ([Geerson, 2012](#)). In sociocultural theory and the genesis of second language development, [Lantolf and Thorne \(2015\)](#) argued for the relationship between sociocultural theory and learning a second language and provided key components of social and cultural theory in second language learning, such as mediation, regulation, internalization, zone of proximal development, scaffolding, and activity theory. In addition, systemic-theoretical instruction and dynamic assessment were also proposed as the application of the principles of sociocultural theory in the management of second language teaching. Furthermore, [Rosamond \(1998\)](#) proposed that in the application of sociocultural theory, considerations for second language acquisition in the zone of proximal development should include activity theory and small group interaction, private speech and self-regulation in second language discourse, scaffolding, and second

language learning. In this research, the sociocultural theory is the primary theoretical basis of the instructional model.

## 2.6. Theory of meaningful verbal learning

The theory of meaningful verbal learning was proposed by American cognitive and educational psychologist David Paul Ausubel. [Khamanee \(2012\)](#) concluded that Ausubel believed in the importance of the substantial connection between new knowledge and previous knowledge or original experience. Learning is meaningful to students if it can be linked to something that has been previously known. Moreover, [Joyce et al. \(2014\)](#) stated that the student's original cognitive structure, the organization of new knowledge or learning materials, and the absorption of new knowledge were the basis of meaningful verbal learning. Therefore, advanced organization or presenting a conceptual framework to the students before teaching the content is useful for improving effectiveness and efficiency in teaching and learning. According to [Prachakul and Nuengchalerm \(2020\)](#), meaningful verbal learning can be achieved through training under the actual situations and problems which means teachers should use examples to provide conditions for students to develop critical thinking and improve their problem-solving skills. In this study, the theory of meaningful verbal learning is another theoretical basis for the development of the instructional model, which is mainly used for the organization of teaching and learning materials and the planning of teaching and learning activities.

## 2.7. Contrastive analysis hypothesis

The contrastive analysis hypothesis of [Lado \(1968\)](#) stressed the influence of the student's first language or mother tongue on second language learning, which includes positive and negative transfer ([Liu, 2016](#)). According to [Lado \(1968\)](#), languages are similar and different and can be compared based on transfer theory, associationism, and stimulus-response theory ([James, 1980](#)). Also, contrastive analysis is a method for studying second language learning by comparing the learning process of the first language and the second language. According to [Susan \(2008\)](#), language is a habit, and learning a second language is essentially getting used to another new habituation system. As a result of the first language being the main source of input and the errors of output, the difficulty, and ease of learning a second language depend on the differences and similarities between the first and the second language. Despite some controversy, teachers can study the disturbance of students' first language from the perspective of contrast analysis ([Liu, 2016](#)) and apply it to the prediction of learning difficulties, setting scales of difficulty, diagnosis of error, and deception in multiple-choice tests ([James, 1980](#)).

## 2.8. The input hypothesis

The input hypothesis is the most essential hypothesis in second language learning, according to [Krashen \(1981\)](#), which emphasizes the importance of input information and materials in language learning. [Krashen \(1981\)](#) believed that learning occurs only when the input information is understandable and acceptable to the student

(Liu, 2016). Thus, in the process of teaching and learning a second language, the information and materials should not be too hard or too easy and should follow the principle of  $i + 1$  mode ( $i$  means the student's current language level). The fundamental abilities needed to acquire a second language are primarily separated into speaking and writing abilities as well as input abilities like listening and reading. A good way to teach output skills is by combining methods with input skills (Zhai, 2010). As a result, teaching and mastering writing in Mandarin should go hand in hand with teaching reading. As a result of it, the selection of reading texts and materials should also conform to this principle of the input hypothesis.

## 2.9. The affective-filler hypothesis

As another essential hypothesis in Krashen's monitor theory, Liu (2016) concluded that the affective-filler hypothesis discusses emotional factors affecting second language learning, including learning motivation, attitude towards the language, confidence, and anxiety, etc. According to Krashen, second language teaching needs to take into account the emotional factors of the students, which can improve the efficiency of the perception of comprehensible input. Additionally, Lv (2007) proposed that whether it is the selection of reading materials or the setting of writing topics, the principle of conforming to the actual situation of the students should be followed, including the current language level of the students, the needs of the students' career planning, and the hot spot of current social discussion, etc.

## 2.10. Factors affecting Chinese reading and writing skills

Second language learning is a complex process. As the advanced language skills, reading, and writing skills of Chinese as a second language are affected by various factors (Xv, 2007; Zhao, 2016a,b), which can be divided into external factors and internal factors (Liu, 2016). According to a survey research by Luo et al. (2022), vocabulary size and usage, grammatical knowledge, and language environment all had an impact on the reading and writing abilities of Chinese major students in the northeast of Thailand. Specifically, attitudes regarding using Chinese in social media in daily life, learning motivation, and learning from online resources while exchanging Mandarin practice. Particularly future job planning, interest in scholarship applications, and worries, such as test anxiety, communication concerns, and challenges with learning Chinese. In this study, the development of the teaching model will not only be based on the above theories and hypotheses but also take into account the above factors.

## 2.11. Related studies

Liu et al. (2019) proposed that language learning requires complementary learning of reading and writing, and advocated integrated teaching combining reading and writing in second language teaching. A study by Kim and Kim (2022) proves that through reading, students can transfer the vocabulary in the text to writing, which is a process of language input through reading, and then language output

through writing. An empirical study by Bagci (2019) shows that writing as a form of self-expression is the most challenging skill, and that the development of writing skills requires the use of a writing process-focused approach that allows students to actively participate in the development of writing skills from the first step. This would make students more proactive. Furthermore, an empirical study by Kadmiry (2021) shows that a writing process-based approach, while taking more time, improves students' writing skills more than a composition-based approach. During teaching, teachers and students draft writing outlines, revise writing manuscripts, and evaluate writing results, thereby strengthening students' self-reflection and evaluation of the writing process. A study by Al-Jarf (2022) indicated that in writing teaching, teachers need to break down writing tasks into small tasks, in which explanations and exercises are carried out from sentences to paragraphs, and provide immediate feedback to students. Additionally, an action study by Cárdenas and López-Pinzón (2019) shows that the reciprocal teaching model helps students build confidence in writing by diagnosing writing difficulties, implementing reading strategies, and assessing the process of writing skills, and improves students' writing skills in terms of increasing vocabulary, reducing grammatical errors, improving language organization and content, and punctuation use. It is an interactive teaching method based on Vygotsky's theory that emphasizes the process of writing, revision, and feedback given by the teacher to the student's writing.

## 3. Method

### 3.1. Research design

This research was divided into two phases, including the design and evaluation of the instructional model and the implementation of the developed instructional model. In the first stage, the framework of the instructional model was determined through documentary research, and the draft of the instructional model was designed and affirmed by five experts in the area. In the second stage, thirty hours of teaching and learning activities were used in the action research with three cycles, which included planning, acting, observing, and reflecting in each cycle (McNiff, 2013).

### 3.2. Participants

In the first stage, there were five experts who recommended and evaluated the developed instructional model, including one expert in research and evaluation, one expert in educational technology, one expert in educational psychology, one expert in curriculum and instruction, and last but not least, one expert in international Chinese language education. In the second stage, fifty second-year students aged 19–21 comprising 1 man and 49 women, who were majoring in Chinese from the Faculty of Humanities and Social Sciences of a public university in Mahasarakham province, Thailand, participated in this research.

### 3.3. Instruments

There were six main instruments used in the study to illustrate, an expert evaluation form, ten lesson plans, ten self-study reading

quizzes, a Chinese reading skills test as a pre-test and a post-test, a Chinese writing skills assessment scale form, and a questionnaire for studying students' attitude toward learning with the developed instructional model.

### 3.4. Procedures

This research was mainly divided into two phases: development and implementation. The first phase consisted of two stages of the instructional model design and evaluation. The second phase included three stages of the Chinese reading skills pre-test, teaching implementation, and Chinese writing skills assessment with three cycles of action research, the Chinese reading skills post-test, and the students' attitude study.

The phase of instructional model development was divided into three steps. First, the theories, principles, and relevant factors for the development of an instructional model based on the second language acquisition theory to promote Chinese reading and writing skills for university students in the northeast of Thailand were studied by documentary research. Then, the draft of the model was designed and affirmed by five experts in the related area. After that, the instructional model was modified based on the recommendations from the experts.

The phase of instructional model implementation was divided into four steps. First, the Chinese reading skills test was used as a pre-test before the developed instructional model implementation. Then, lesson plans for ten lessons were designed according to the developed instructional model, revised, and used in teaching and learning for fifty second-year students majoring in Chinese from the faculty of humanities and social sciences of a public university in Mahasarakham province with three cycles of action research,

which included planning, acting, observation and reflecting in each cycle. At the same time, the progress of students' Chinese reading and writing skills was studied with the assessment from ten self-study reading quizzes and ten essays. After that, a Chinese reading skills test was used as a post-test after the developed instructional model implementation. Moreover, the students' attitudes toward learning with the developed instructional model were studied with a questionnaire. Finally, the results were analyzed and reported.

### 3.5. Data analysis

The data obtained were analyzed by use of content analysis and basic statistics, including mean and standard deviation.

## 4. Results

The results of the study are presented according to the objectives of the research.

First, there were five components in the developed instructional model, which are presented in the following figures: As Figure 1 shows, the instructional model consists of the following five components:

Table 1 presents that the SPA model evaluated by five experts in the related area had the highest level of quality and appropriateness in theories and principles, objectives, the social system, the principle of reaction, the support system and application, and followed by syntax and sequence and effect of the instructional model at a very high level. It could be interpreted that the SPA model was an appropriate way to

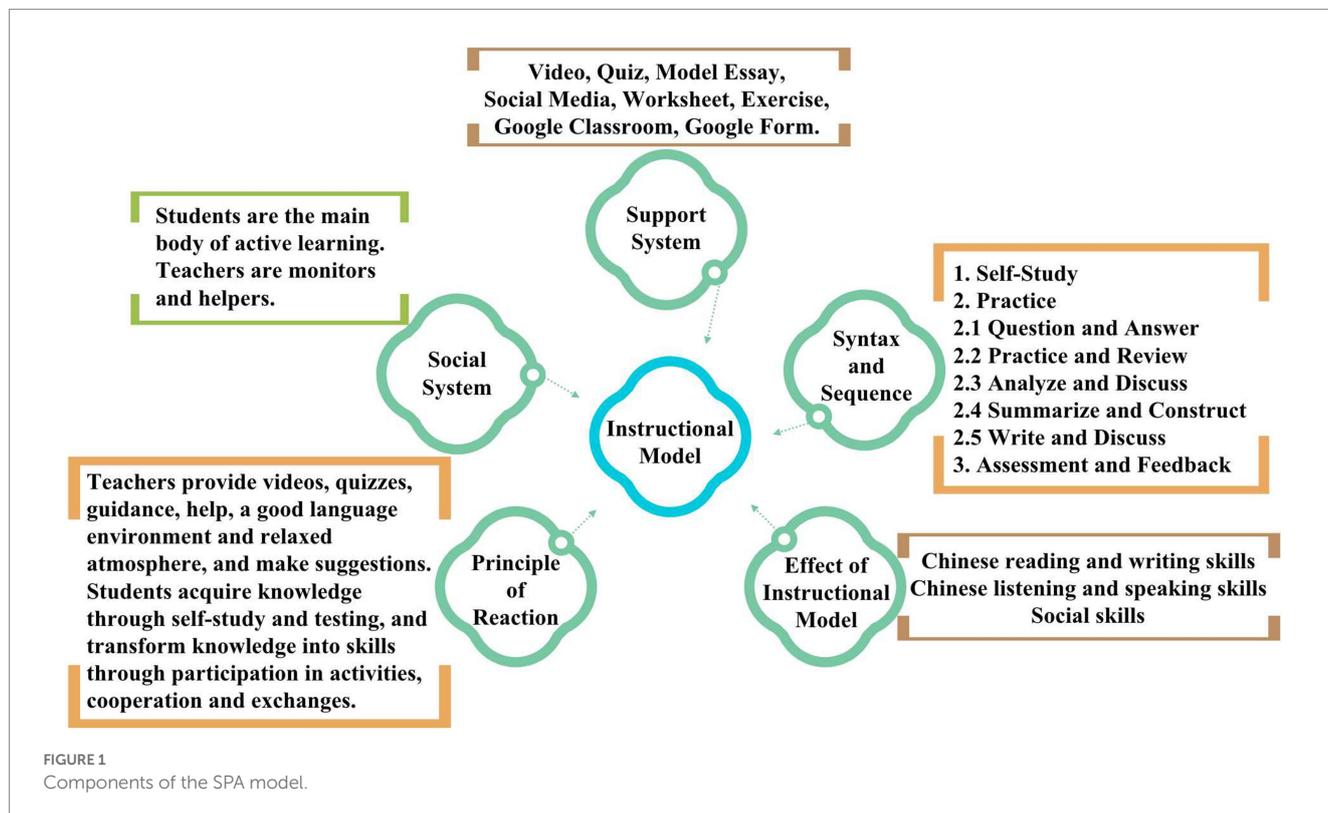


TABLE 1 The evaluation of the SPA model.

No.	Issues	Mean	S.D.	Interpretation
1	Theories and principles	4.64	0.49	Highest
2	Objective	4.80	0.40	Highest
3	Syntax and sequence	4.48	0.55	Very high
4	Social system	4.70	0.48	Highest
5	Principle of reaction	4.54	0.51	Highest
6	Support system	4.75	0.44	Highest
7	Effect of instructional model	4.33	0.49	Very high
8	Application	4.80	0.41	Highest
Average		4.61	0.50	Highest

promote Chinese reading and writing skills for university students in the northeast of Thailand (see Figure 2).

Secondly, the results of the implementation of the developed instructional model on reading skills. According to Table 2, the sub-tests' average scores of Chinese reading skills in cycles 1, 2, and 3 were 7.21, 7.74, and 8.00, respectively. The number of students who passed or failed in Chinese reading skills in each cycle is shown below:

According to Figure 3, it was found that, in the first cycle, the number of students who passed the Chinese reading quiz was 39, and the number that failed was 11. In the second cycle, the number of students who passed the Chinese reading quiz was 45, and the number that failed was 5. Finally, all students passed the Chinese reading quiz in the third cycle.

Table 3 displays that the pre-test' average score of Chinese reading skills was 25.86 with a standard deviation of 5.13, whereas the post-test average score of Chinese reading skills was 32 with a standard deviation of 3.56.

From the results in Tables 2, 3 and Figure 3, it can be concluded that students' Chinese reading skills have been improved in the process of learning with the SPA model.

Thirdly, the results of the implementation of the developed instructional model on writing skills. Table 4 demonstrated the average scores of Chinese writing skills in cycles 1, 2, and 3 were 25.53, 29.11, and 32.03, respectively. Overall, students' Chinese writing level has improved from fair to good. Furthermore, the Chinese writing skill level of the students in the three cycles is shown in the figures below:

Figure 4 shows the excellent level, the number of students increased from 0 in the first cycle and the second cycle to 1 student in the third cycle. For the very good level, the number of students increased from 0 in the first cycle to 7 students in the second cycle and finally to 17 students in the third cycle. For the good level, the number of students increased from 8 in the first cycle to 17 in the second cycle and finally to 27 students in the third cycle. For the fair level, the number of students increased from 25 in the first cycle to 26 in the second cycle but was reduced to 5 in the third cycle. For the poor level, the number of students was reduced from 17 in the first cycle to 0 in the second cycle and the third cycle.

From the results in Table 4 and Figure 4, it can be concluded that students' Chinese writing skills have improved in the process of learning with the SPA model.

Finally, the study on the students' attitudes toward learning with the developed instructional model.

From Table 5, it was found that the overall attitude of the students toward learning with the SPA model created by the researcher has an average of 4.09, which could be explained that the attitudes of the students toward learning with the SPA model were at a very high level. Furthermore, students had the highest level toward two issues, namely item 10 and item 17, which were related to the role of peer evaluation, expressing opinions and suggestions.

In addition, the researcher also asked for the opinions and suggestions of the students about learning with the SPA model. It could be concluded that in the process of learning with the instructional model created by the researcher, students could prepare for classroom learning activities in the self-study stage, and each step in the SPA mode was helpful in improving students' Chinese reading and writing skills. Students shared knowledge and experiences through interaction and exchange with teachers and peers in classroom exercises and group work, feeling relaxed and stress-free in a joyful learning environment and atmosphere.

## 5. Discussion

The instructional model to promote Chinese reading and writing skills (the SPA model) was developed based on sociocultural theory, the theory of meaningful verbal learning, the input hypothesis, the affective-filler hypothesis, the contrastive analysis hypothesis, and factors including vocabulary, grammar, motivation, attitude, language environment, and anxiety. The developed instructional model consists of three stages in syntax and sequence, which start with reading and end with writing. As an instructional model that combines reading and writing, the SPA model is the whole process of taking into account the needs and characteristics of students, learning objectives, teaching implementation, and measurement and evaluation. It is a teaching and learning style that is consistent with Zhai (2010) proposed that in developing Chinese writing skills as a second language, students should be asked to read and analyze the sample text first, then be assigned writing practice activities in order to develop students' Chinese writing ability. Kim and Kim (2022) noted that reading combined with writing is an effective teaching method in second language teaching, which can help students accumulate vocabulary and improve writing fluency. The SPA model is also a process-focused approach that can help students improve reading comprehension and writing skills, while developing students' ability to think, analyze, summarize and evaluate (Bagci, 2019). Moreover, process-based

writing instruction can provide students with an interactive and collaborative environment that not only helps students maintain motivation and willingness to write, but also pushes students to write at their best (Kadmiry, 2021). In the SPA model, students can participate in the whole learning process, and teachers can guide students to participate in collective discussions, and encourage students to share personal experiences through interactive activities, so as to achieve cooperative learning (Cárdenas and López-Pinzón, 2019).

In stage one, self-study, the teacher prepares the comprehensible input (Liu, 2016) systematically in order to help students obtain conceptual knowledge and achieve meaningful learning (Khamanee, 2012). Then students study by themselves and take quizzes to find out the self-study results, which conforms to Lantolf and Thorne (2015) stated that according to sociocultural theory, humans could invent objects or ideas with mediation by using regulation. It is worth noting that teachers should make full use of students' learning motivation to ensure that they can actively engage in self-learning with the help of

self-regulation (Teng and Zhang, 2018). In stage two, practice, five sub-steps, including question and answer, practice and review, analyze and discuss, summarize and construct, and write and discuss, are used to assist students in building their own knowledge, which is an internalization process that arises from interactions by imitation (Lantolf and Thorne, 2015), and teachers provide facilities to guide students by using language, conversations, and collaborative activities in order to promote students' internal understanding and help students to develop themselves indefinitely until the problem can be solved on their own (Rosamond, 1998). In stage three, assessment and feedback, dynamic assessment is used, which focuses on the individual's development (Lantolf and Thorne, 2015), and has a positive effect on the learning process of students, therefore positive and constructive feedback can be given, while negative feedback should be avoided (Thaha Abdullateef and Muhammedzein, 2021). In the process of dynamic assessment, teachers point out mistakes, and let students try to correct themselves. Therefore, collaborative writing, teacher-student interaction, and negotiation are necessary (Al-Jarf, 2022).

The results of the three cycles of action research show that the students' Chinese reading and writing skills have improved overall. With the developed instructional model, students construct knowledge by reading on their own under the guidance and supervision of the teacher, working together, exchange knowledge and experiences with friends, which is consistent with Lantolf and Thorne (2015) described that learning is effective when interacting with the surrounding environment and cooperating with peers. Most importantly, students gain knowledge of Chinese writing at the first stage, including vocabulary, grammar, writing style, and article structure, which is in line with the concept of the theory of meaningful verbal learning that presenting concepts or frameworks to students before teaching activities is beneficial to students (Khamanee, 2012). After that, students can practice and write an essay with friends until finally being able to create their essay, which is consistent with Lantolf and Thorne (2015) stated that learning a second language is building inner self-understanding through imitation through interactions. In addition, a study by Pae (2019) proved that proficiency in a first language has a significant effect on reading and writing skills in a second language, which means that the two languages could interact with each other. As Khansir and Pakdel (2019) discovered that comparative analysis was applicable to teachers' teaching as well as students' learning, the comparative analysis of Chinese and Thai languages deepens students' understanding of the target language.

However, it is necessary for teachers to provide a student-centered teaching and learning approach, which requires educational institutions to provide teachers with regular training to improve teachers' role awareness and professionalism in scaffolding teaching (Özkan, 2022). Moreover, a relaxed and pleasant learning Chinese language environment and atmosphere should be created for students to increase their positive attitude and reduce anxiety in learning Chinese (Zhou, 2017). In the process of learning with the developed instructional model, activities in

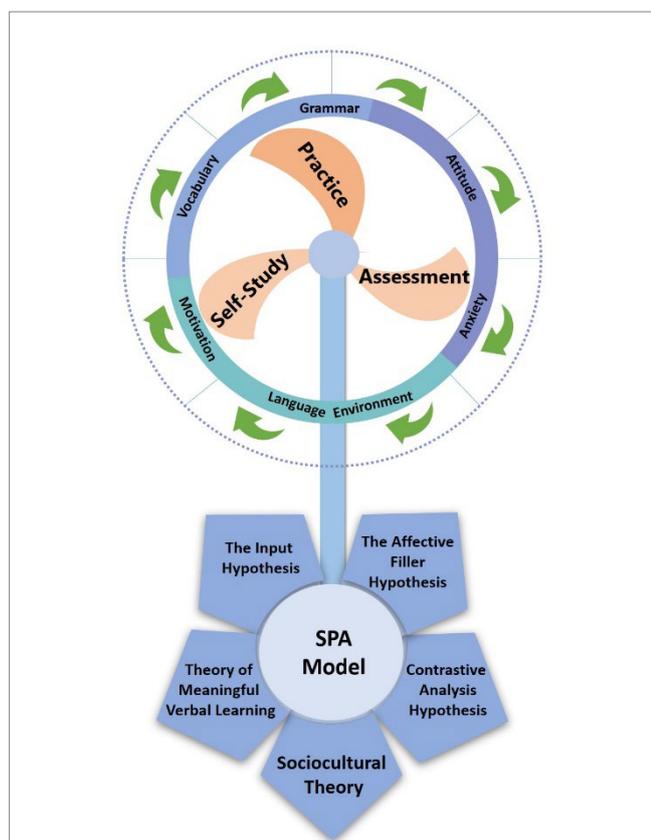


FIGURE 2 Conceptual framework of the SPA model.

TABLE 2 Analysis of progress of students' Chinese reading skills in three cycles.

Cycle	I			II			III			
Lesson	1	2	3	4	5	6	7	8	9	10
Full mark	10	10	10	10	10	10	10	10	10	10
Mean	6.48	7.52	7.62	7.92	8.16	7.14	7.62	7.88	8.12	8.40
Average	7.21			7.74			8.00			

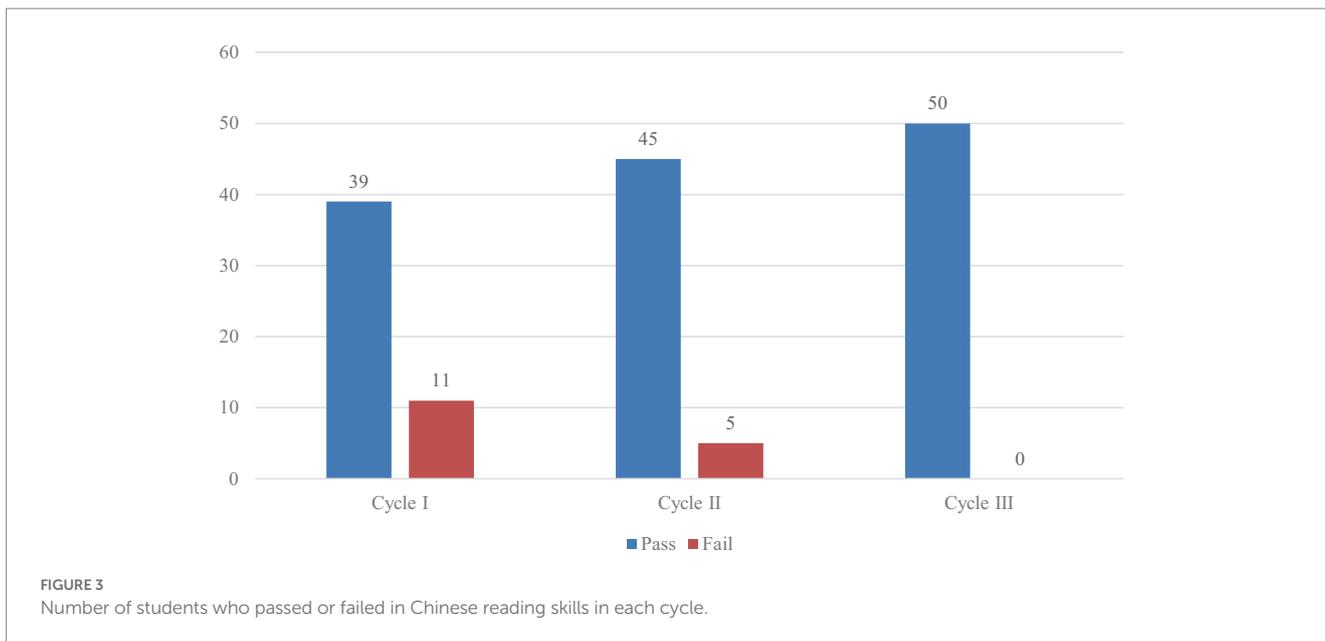


TABLE 3 Comparison of Chinese reading skills before and after learning with the SPA model.

Full mark	Pre-test		Post-test	
	Mean	S.D.	Mean	S.D.
40	25.86	5.13	32	3.56

each step of the model can improve students' Chinese reading and writing skills, students can exchange knowledge and opinions in group work with teachers and friends in a relaxed and stress-free environment, which can improve the efficiency of learning (Lai and Wei, 2019).

## 6. Conclusion and recommendations

Language learning is a process of first imitating and then constructing cognition in social interaction (Lantolf and Thorne, 2015). Reading and writing skills of Chinese as a second language are inseparable, which can promote and influence each other (Zhao, 2016a,b). In this research, a reading and writing integrated instructional model was developed to study students' progress in Chinese reading and writing skills during a three-cycle action research process. In addition, students' attitudes toward learning with the developed instructional model were investigated. The results indicated that the developed instructional model with five components had the highest level of quality and appropriateness, and students' Chinese reading and writing skills had improved. Furthermore, the student's attitude toward learning with the developed instructional model was at a very high level. Based on the above research results, some recommendations will be proposed.

This instructional model can be applied to online or on-site teaching or hybrid teaching, depending on the actual situation and the readiness of teachers and students. With the development of educational technology, online teaching should be encouraged and

properly applied to classroom teaching, as implementing online teaching can help second language students improve their basic knowledge and increase their motivation to learn (Zainal et al., 2022). The guidance of teachers and the help of classmates in the classroom, and the use of online resources outside the classroom have their own advantages and disadvantages. Therefore, the flipped classroom writing model needs to be applied because it is an effective teaching method that meets the needs of students (Sengul and Bensen Bostanci, 2021). Teachers can use information technology resources to make writing learning more attractive, and although writing teaching has always been a difficult point in second language teaching, it is believed that modern information technology can provide more effective means (Kawinkoonlasate, 2021).

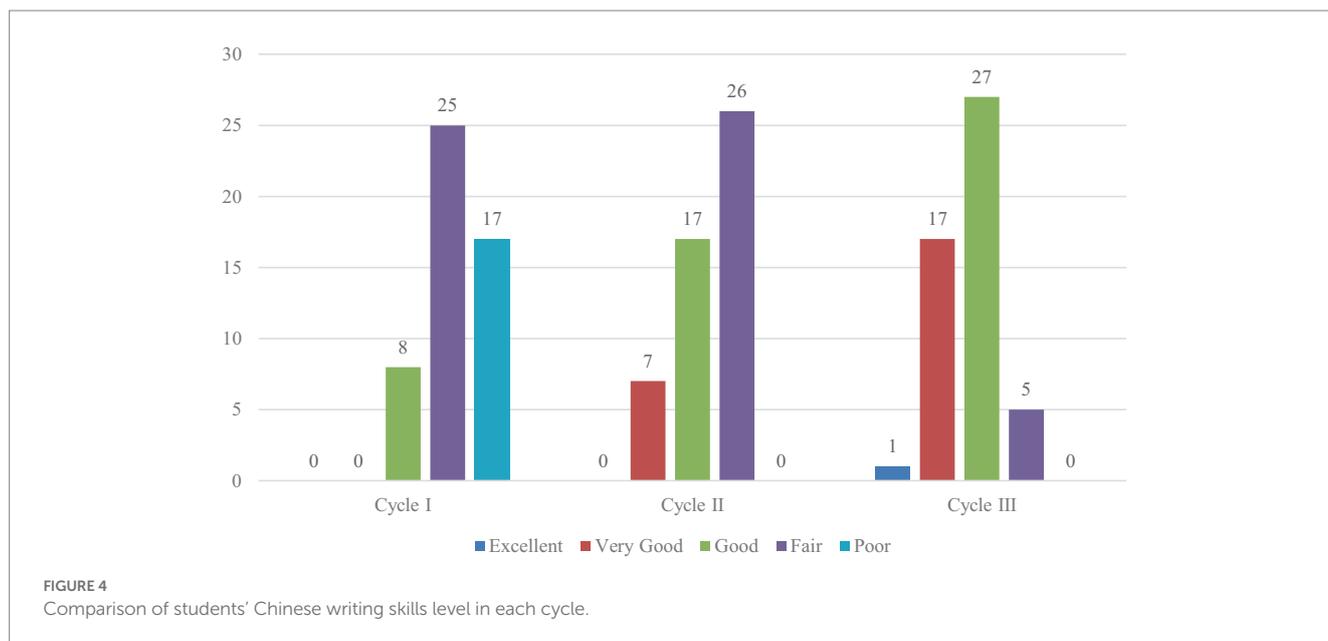
At the same time, since the essential attribute and ultimate goal of learning a second language is communication (Liu, 2016), the use of social media should be encouraged, through which students can practice and improve their proficiency in the use of the second language so that that language skills can be comprehensively improved (Rezaul Karim et al., 2022). In addition, teachers should have a comprehensive understanding of the students, including basic language and emotional factors, in order to prepare suitable learning content for students. Various activities need to be designed, and a relaxed classroom atmosphere should be created to support students to take exercises in a pleasant frame of mind. Furthermore, the relationship between reading and writing skills, the duties and responsibilities of students during group work should be studied, and the integrated Chinese language reading and writing skills curriculum should be developed for further research.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

TABLE 4 Analysis of progress of students' Chinese writing skills in three cycles.

Cycle	I			II			III			
Lesson	1	2	3	4	5	6	7	8	9	10
Full mark	40	40	40	40	40	40	40	40	40	40
Mean	23.94	25.38	27.28	28.98	28.68	29.66	30.62	31.36	32.72	33.40
Average	25.53			29.11			32.03			
Level	Fair			Good			Good			



## Ethics statement

The studies involving human participants were reviewed and approved by Maharakham University Ethic Committee. The participants provided their written informed consent to participate in this study.

## Author contributions

ML, JC, TC, YS, and BN contributed to the conception and design of the study. ML and YS organized the database. ML performed the statistical analysis. ML wrote the first draft of the manuscript. JC, TC, and BN wrote sections of the manuscript. All authors contributed to the article and approved the submitted version.

## Funding

This research project was financially supported by Maharakham University. The grant number is MSU 660011164.

## Acknowledgments

The authors would like to thank all participants who were involved in this study.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

TABLE 5 Students' attitudes toward learning with the SPA model.

Components of Attitude	Issues	Mean	S.D.	Interpretation
Cognitive	1	4.46	0.68	Very high
	2	4.44	0.58	Very high
	3	4.04	0.62	Very high
	4	4.35	0.57	Very high
	5	4.19	0.79	Very high
	6	4.31	0.59	Very high
	7	4.27	0.68	Very high
	8	3.96	0.85	Very high
	9	3.94	0.78	Very high
	10	4.60	0.57	Highest
Affective	11	3.65	0.93	Very high
	12	3.71	0.79	Very high
	13	3.73	0.67	Very high
	14	3.73	0.84	Very high
	15	3.77	0.95	Very high
	16	4.13	0.78	Very high
	17	4.65	0.48	Highest
Behavioral	18	3.96	0.85	Very high
	19	3.79	0.85	Very high
	20	4.10	0.83	Very high
Average		4.09	0.73	Very high

## References

- Al-Jarf, R. (2022). Role of instructor qualifications, assessment and pedagogical practices in EFL students' grammar and writing proficiency. *J. World English. Educ. Pract.* 4, 06–17. doi: 10.32996/jweep.2022.4.2.2
- Bagci, H. (2019). The effect of 4+ 1 planned writing and evaluation model on developing writing skills and writing self-sufficiency levels of learners of Turkish as a foreign language. *Educ. Pol. Anal. Strat. Res.* 14, 7–25. doi: 10.29329/epasr.2019.208.1
- Cárdenas, K. J., and López-Pinzón, M. M. (2019). The reciprocal teaching model in the development of writing in tenth graders. *GIST-Educ. Learn. Res. J.* 19, 128–147. doi: 10.26817/16925777.801
- Center for Language Education and Cooperation. (2014). *International curriculum for Chinese language education*. Beijing: Foreign Language Teaching and Researching.
- Chookhampang, C. (2008). *Learning assessment*. Mahasarakham: Mahasarakham University.
- Esornpreeda, P. (1980). *The psychology of learning and teaching*. Bangkok: Graphic Arts.
- Geerson, E. B. (2012). An overview of Vygotsky's language and thought for EFL teachers. *LEARN Journal: Language Education and Acquisition Research Network* 3, 41–61. <https://so04.tci-thaijo.org/index.php/LEARN/article/view/102774>
- Good, C. V. (1995). *Dictionary of education (3rd)*. New York: McGraw-Hill, Inc.
- James, C. (1980). *Contrastive analysis*. London: Routledge.
- Joyce, B., Weil, M., and Calhoun, E. (2014). *Models of teaching*. Beijing: China Renmin University Press.
- Kadmiry, M. (2021). The comparison between the process-oriented approach and the product-oriented approach in teaching writing the case of Moroccan EFL students in preparatory classes for the grandes écoles. *AWEJ* 12, 198–214. doi: 10.24093/awej/vol12no1.14
- Kawinkoonlasate, P. (2021). A study of using e-writing instructional design program to develop English writing ability of Thai EFL learners. *Engl. Lang. Teach.* 14, 43–61. doi: 10.5539/elt.v14n6p43
- Khamanee, T. (2012). *Teaching science. Knowledge for organizing effective learning processes*. Bangkok: Chulalongkorn University Press.
- Khansir, A. A., and Pakdel, F. (2019). Contrastive analysis hypothesis and second language learning. *J. ELT Res.* 4, 35–43. doi: 10.22236/je\_r\_vol4issue1pp35-43
- Kim, S. Y., and Kim, K. S. (2022). Vocabulary transfer from reading to writing: a comparison of essay writing and synchronous CMC. *Teach. Engl. Second Foreign Lang.* 101, 1–21. doi: 10.55593/ej.26101a8
- Krashen, S. (1981). *Second language acquisition and second language learning*. Oxford: Pergamon Press Inc.
- Lado, R. (1968). "Contrastive linguistics in a mentalistic theory of language learning" in *In contrastive linguistics and its pedagogical implications. Report of the nineteenth annual round Table meeting on linguistics and language studies*, Washington DC: Georgetown University Press [Monograph Series on Languages and Linguistics 21] (pp. 123–35).
- Lai, W., and Wei, L. (2019). A critical evaluation of Krashen's monitor model. *Theory Pract. Lang. Stud.* 9, 1459–1464. doi: 10.17507/tpls.0911.13
- Lantolf, J. P., and Thorne, S. L. (2015). *Sociocultural theory and the genesis of second language development*. Oxford: Oxford University Press.
- Liu, X. (2016). *An introduction to pedagogy of Chinese as a foreign language*. Beijing: Beijing Language and Culture University Press.
- Liu, H., Brantmeier, C., and Strube, M. (2019). *EFL test preparation in China: the multidimensionality of the reading-writing relationship*. Reading in a Foreign Language, 31, 44–61.
- Luo, M., Chano, J., Chittranun, T., and Nithideechaiwarachok, B. (2022). Improving Chinese reading and writing skills: second language acquisition theory perspective. *J. Educ. Issues* 8, 325–346. doi: 10.5296/jei.v8i2.20148
- Lx, B. (2007). *Chinese and teaching Chinese as a second language*. Beijing: Peking University Press.
- McNiff, J. (2013). *Action research: principles and practice*. London: Routledge.
- Office of the Education Council. (2017). *National education plan 2017–2036*. Bangkok: Prikworn Graphic CO., Ltd.
- Özkan, E. C. (2022). Scaffolding as teachers' guidance role in the context of constructivist learning approach. *J. Educ. Issues* 8, 399–419. doi: 10.5296/jei.v8i1.19690
- Pae, T. (2019). A simultaneous analysis of relations between L1 and L2 skills in reading and writing. *Read. Res. Q.* 54, 109–124. doi: 10.1002/trq.216

- Prachakul, W., and Nuengchalerm, P. (2020). *Teaching and learning model*. Khon Kaen: Nana Wittaya Archives.
- Rezaul Karim, M., Ali Mondal, S., Hussain, A., Alam, M., and Nazarieh, M. (2022). Social media and learning of English language: a study on the undergraduate students of Assam, India. *Educ. Res. Int.* 2022, 1–10. doi: 10.1155/2022/8238895
- Rosamond, F. (1998). *Second language learning theories*. London: Edward Arnold.
- Sengul, F., and Bensen Bostanci, H. (2021). In-class versus out-of-class flipped classroom models in English as a foreign language writing. *Propós. y Represent.* 9, 852–865. doi: 10.20511/pyr2021.v9nsp1.852
- Susan, M. G. (2008). *Second language acquisition*. London: Routledge.
- Teng, L. S., and Zhang, L. J. (2018). Effects of motivational regulation strategies on writing performance: a mediation model of self-regulated learning of writing in English as a second/foreign language. *Metacogn. Learn.* 13, 213–240. doi: 10.1007/s11409-017-9171-4
- Thaha Abdullateef, S., and Muhammedzein, F. (2021). Dynamic assessment: a complementary method to promote EFL learning. *Arab World Engl. J.* 12, 279–293. doi: 10.24093/awej/vol12no2.19
- Tumthong, B. (2016). *Theory and development model of learning management*. Bangkok: Triple Group CO., Ltd.
- Wang, Z., and Chen, Z. (1997). *Research on teaching Chinese as a foreign language*. Beijing: Beijing Language and Culture University Press.
- Wasinanon, N. (2016). The study of Thailand's systematic Chinese teaching management in higher education. *Chinese Studies J. Kasetsart Uni.* 9, 263–287.
- Wongsanut, P. (1991). *Educational psychology*. Bangkok: Sahamit Offset.
- Xv, Z. (2007). *Psychology of teaching Chinese as a foreign language*. Shanghai: East China Normal University Press.
- Yang, Y. (2010). *Achievement test for teaching Chinese as a foreign language*. Beijing: Peking University Press.
- Zainal, A. G., Ismail, S. M., Tagibova, A. A., Al-Sayyed, S. I. W., Wekke, I. S., Sofyawati, E. D., et al. (2022). An account of EFL learners' grammatical knowledge and motivation toward learning in an online instructional environment. *Educ. Res. Int.* 2022, 1–11. doi: 10.1155/2022/8099222
- Zhai, S. Y. (2010). *Teaching Chinese skills as a second language*. Beijing: Peking University Press.
- Zhang, K. (2006). *Language testing theory and Chinese testing research*. Beijing: The Commercial Press.
- Zhao, J. (2016a). *Chinese can be taught in this way - language skill*. Beijing: The Commercial Press.
- Zhao, J. (2016b). *Introduction to teaching Chinese as a foreign language*. Beijing: The Commercial Press.
- Zhong, B. (2019). Chinese communication skills of secondary school students in Thailand. *E-J. Educ. Stud. Burapha Uni.* 1, 1–15.
- Zhou, X. (2017). *Introduction to teaching Chinese as a foreign language*. Guangzhou: Sun Yat-sen University Press.