

Knowledge Elicitation for Spoken English Teaching through the Design Thinking Process

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Abstract

As the international lingua franca, English serves as a communication medium for people from diverse linguistic backgrounds. In China, junior high school marks the beginning of systematic English learning for most students. However, spoken English receives insufficient attention, and this phenomenon is particularly evident in public junior high schools. This research employed the five steps of the Empathize-Define-Ideate-Prototype-Test in design thinking to explore challenges and elicit insights for improving current spoken English teaching in public junior high schools in Chengdu. Firstly, the current standard of spoken English teaching was analyzed using a combination of questionnaire data from students and English teachers, which was structured according to the Context, Input, Process, and Product (CIPP) model. Additionally, the key problems and root causes of these problems in current spoken English teaching were identified through thematic analysis of semi-structured interviews with experienced English teachers. Subsequently, divergent information on how to effectively address the identified problems was derived by organizing interview data and reviewing relevant literature. Furthermore, important knowledge was elicited by considering the diverse obstacles faced in spoken English teaching in public junior high schools. Finally, the advantages and applicability of the elicited knowledge were validated through a comparison with the current teaching practices. The findings highlighted the significant gap between the actual practices and ideal standards of spoken English teaching and proposed actionable knowledge to bridge this gap. This research is intended to provide valuable insights for English teachers to enhance their spoken English teaching skills and support the positive development of spoken English education in public junior high schools.

Keywords: Spoken English teaching; Design thinking; CIPP model; Knowledge elicitation; Junior high schools in Chengdu

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Introduction

Language serves as a critical tool for communication, enabling people to exchange their feelings, thoughts, and ideas, thereby fostering global connections. As the foremost world language and global lingua franca, English facilitates effective communication across diverse linguistic and cultural contexts (Nosirova, 2023). Since English is widely used in economics, politics, education, and entertainment, the significance of its role in communication continues to grow. The importance of learning English, especially spoken English, in the 21st century is undeniable. As a medium of global communication, spoken English enables individuals to better navigate the challenges of the modern world (Sawalmeh & Dey, 2023). Consequently, spoken English has become increasingly central to both daily interactions and language instruction.

Since China acceded to the World Trade Organization (WTO) in 2001 and its hosting of the 29th Summer Olympic Games in 2008, Chinese citizens have become increasingly aware of the necessity of learning spoken English (Liu, 2005). Spoken English is particularly important for the personal development of junior high school students, making it a critical focus at this formative stage. Furthermore, junior high school is the foundational stage of secondary school, and focusing on spoken English teaching in junior high schools can help to promote the positive development of English teaching and lay a solid foundation for long-term English learning (Wang, 2023). As the world is becoming more connected in the 21st century, a person with professional English knowledge and good speaking ability may gain more opportunities in study and career development, so it is essential for junior high school students to master a good foundation in spoken English.

English language teaching in Asia often prioritizes grammar and translation over the development of practical communication skills. This trend is evident in English teaching in China, especially at the secondary school level. The English Curriculum Standards for Compulsory Education (2022 edition) emphasizes developing students' English language skills in junior high schools, enabling them to use appropriate language for daily communication and to express their thoughts and opinions. Although English teachers and students in China have increasingly recognized the importance of spoken English, its teaching in junior high schools remains unsatisfactory due to the constraints of an exam-oriented education culture (Zhang, 2023). In most junior high schools, particularly public ones, English teaching predominantly relies on the teacher-centered grammar-translation method (Fan, 2019). Moreover, compared to private junior high schools, the challenges of teaching spoken English are more pronounced in public junior high schools. Spoken English teaching in public junior high schools has long been shaped by structural linguistics, which prioritizes grammatical knowledge over practical application (Sun, 2020). Research has identified four key problems in spoken English teaching in junior high schools: varying levels of teachers' spoken proficiency, insufficient emphasis on spoken English by both teachers and students, lack of student confidence, and absence of an immersive English-speaking environment (Zhang, 2022, p. 581). Therefore, there is an urgent need for actionable knowledge to address these challenges in spoken English teaching in junior high schools.

With the continuous introduction of effective teaching methods in education, design thinking offers a practical solution to address the problems of spoken English teaching in junior high schools. Design thinking is an innovative problem-solving process that centers on understanding human needs to create solutions that align with organizational or individual expectations. Although design thinking is often depicted as a linear process, it is inherently iterative, enabling researchers or designers to refine solutions for optimal outcomes (Henriksen et al., 2017).

This article focuses on public junior high schools in Chengdu as a case study. Chengdu, a new first-tier city in Southwest China, lags behind developed coastal cities in terms of spoken English teaching resources, highlighting significant problems that need to be addressed. Additionally, Sun (2020) indicated that English teachers in public junior high schools tend to overemphasize grammatical knowledge while neglecting spoken English due to rigid teaching arrangements and the examination system. In this article, 384 students and 16 English teachers from public junior high schools in Chengdu are included as research participants. Design thinking is employed as the foundational theory to develop important knowledge for English teachers to enhance spoken English teaching.

Literature Review

2.1 Spoken English teaching

As a language widely used across the world, English holds undeniable importance. According to Sawalmeh and Dey (2023), teachers proficient in spoken English play a pivotal role in helping learners master English as a second language. English teachers are also directly responsible for guiding students in mastering the four language skills: listening, speaking, reading, and writing. Fan (2019) emphasized that teachers can improve spoken English teaching by incorporating question-and-answer modes, role-play activities, class discussions, and English games. Li (2024) further highlighted that integrating activities and practices into spoken English teaching effectively stimulates students' interest and enhances their class participation. Overall, effective spoken English teaching demands a supportive language environment, diverse interactive activities, and active engagement from both teachers and students.

However, numerous problems arise in the practical implementation of spoken English teaching. Chen and Goh (2011) argued that spoken English teaching in large-sized classes limits overall teaching effectiveness. Additionally, insufficient teaching resources and the limited spoken proficiency of English teachers further undermine the teaching quality. At present, the Senior High School Entrance Examination and the National College Entrance Examination remain the ultimate goal of the teaching and learning process, which continues to reinforce the influence of exam-oriented education. Yang (2014) observed that English language education in China is heavily driven by the pursuit of admission rates, with teaching focusing primarily on reading, vocabulary, and grammar as outlined in the Senior High School Entrance Examination syllabus, leaving minimal room for spoken English practice. Li (2024) further noted that despite studying English from Grade 3 in primary school through high school, most Chinese students still struggle to speak this language. The primary reason is that the extensive syllabus and the pressure to achieve high admission rates often cause English teachers and students to overlook spoken English instruction and practice.

Therefore, this article focuses on spoken English teaching to identify the key problems and root causes encountered by English teachers in public junior high schools and to develop important knowledge for English teachers to enhance their spoken English teaching.

2.2 Design thinking

Design thinking is a problem-solving methodology that emphasizes addressing specific human needs. It allows individuals or organizations to identify pressing problems and develop practical solutions. Carlgren et al. (2016) described design thinking as an iterative framework comprising activities that can appear linear in structure but are inherently flexible. In recent years, design thinking has gained attention among researchers and professionals across domains such as business, education, and medicine. In the context of education,

particularly English language teaching, design thinking provides a structured approach to addressing the challenges faced by teachers and students, thus fostering the development of English language education. Cleminson and Cowie (2021) highlighted that integrating design thinking into English classes can promote the acquisition of essential 21st-century English skills. The five steps of design thinking, including Empathize, Define, Ideate, Prototype, and Test, serve as the guiding framework of this research.

The Empathize step best exemplifies the human-centered essence of design thinking, requiring researchers to develop a deep understanding of a specific issue through listening, observation, and interaction. In this research, the researcher explored the attitudes of English teachers and students towards spoken English teaching and understood the current situation of spoken English teaching through the use of questionnaires.

The Define step involves further clarifying the information gathered in the Empathize, providing a directional focus for the entire process. In this research, semi-structured interviews were conducted with English teachers with at least three years of teaching experience to identify key problems and their root causes in current spoken English teaching.

The Ideate step emphasizes divergent thinking, encouraging the exploration of various aspects of the challenges and generating as many ideas as possible. In this research, specific ideas gathered through interviews during the Define step served as crucial inputs for this research in addressing current problems in spoken English teaching.

The Prototype step is an iterative process of developing solutions, progressing from quick and flexible prototypes in the early stage to more refined prototypes in the later stage, ultimately evolving into optimal and actionable solutions. In this research, the researcher synthesized and filtered diverse information gathered during the Ideate step to derive knowledge aimed at addressing the key problems in current spoken English teaching.

The Test step is closely linked to the Prototype step. During the Test step, the prototype is put into practice to enable further refinement. In this research, the specific knowledge generated to address the key problems in spoken English teaching was compared with the current situation of spoken English teaching in public junior high schools in Chengdu, thereby highlighting the advantages of the generated knowledge.

2.3 CIPP model

Daniel Stufflebeam creatively introduced the CIPP model in 1960, which is considered a comprehensive decision-oriented evaluation model. Chen (2009) emphasized that the primary purpose of the CIPP model is not merely to validate but to facilitate improvement. Additionally, the CIPP model assists educators in acquiring valuable insights to refine their educational frameworks. Darama et al. (2018) utilized the CIPP model to evaluate the Grade 5 English curriculum, categorizing interview questions into the four dimensions of “Context, Input, Process, and Product”, which streamlined the collection of relevant data. To comprehensively showcase the efficiency of the CIPP model in education, researchers have employed diverse data collection methods. For instance, Liu (2022) combined questionnaires and interviews with the CIPP model to evaluate spoken English teaching in senior high schools, thereby enhancing both the scope and depth of its application in educational contexts. The details of each process within the CIPP model are outlined below.

Context evaluation aims to define the specific context and identify the ideal conditions while focusing on unmet or neglected needs (Darama et al., 2018). In this research, questionnaire data collected from English teachers and students in public junior high schools in Chengdu were analyzed to understand their attitudes and the current situation of spoken English teaching.

Input evaluation focuses on how implementers plan and allocate strategies, resources, time, and skills. In this research, the current efforts of teachers and students in spoken English were evaluated based on their questionnaire responses, while the quality of spoken English teaching resources was evaluated using teachers' questionnaire data.

Process evaluation involves recording and evaluating the entire implementation process to determine its status and effectiveness. In this research, the actual practices of teachers in conducting spoken English teaching, as well as students' class participation, were analyzed using questionnaire data collected from both teachers and students.

Product evaluation focuses on measuring the outcomes of the program or process. In this research, questionnaire data collected from teachers and students were used to analyze their subjective evaluations of the effectiveness of spoken English teaching, providing insights into current spoken English teaching practices.

2.4 Thematic analysis

Thematic analysis is a qualitative data analysis method commonly used to analyze interviews or transcripts. It provides a deeper understanding of the perspectives and experiences of research subjects and is widely applicable across various research fields. The effectiveness of thematic analysis in data interpretation has also attracted significant attention from researchers in education. Xu and Zammit (2020) demonstrated how thematic analysis can be employed to interpret class practices by analyzing common data sources, such as teacher interviews and student focus groups. Similarly, Dawadi (2020) utilized thematic analysis to interpret interviews and spoken diary transcripts, enabling the researcher to explore the complexity of the research problem and capture detailed perspectives, thus offering valuable insights for practitioners in English language teaching.

Braun and Clarke (2006, pp. 16-23) developed a specific procedure for thematic analysis in their psychological research, which includes the following six steps: step 1, familiarising yourself with your data; step 2, generating initial codes; step 3, searching for themes; step 4, reviewing themes; step 5, defining and naming themes; step 6, producing the report. This procedure has been widely employed and practiced by many researchers, and the flexibility of thematic analysis allows its application across diverse fields. In this research, after conducting semi-structured interviews with experienced English teachers during the Define step, the researcher analyzed the interview transcripts using thematic analysis. This approach enabled the researcher to extract the experiences and opinions of teachers from the collected data, thereby identifying the key problems and root causes in current spoken English teaching.

Overall, this research is guided by the design thinking process and integrates the CIPP model and the thematic analysis to explore the key problems and root causes in current spoken English teaching, eliciting valuable knowledge on how to effectively conduct spoken English teaching for English teachers.

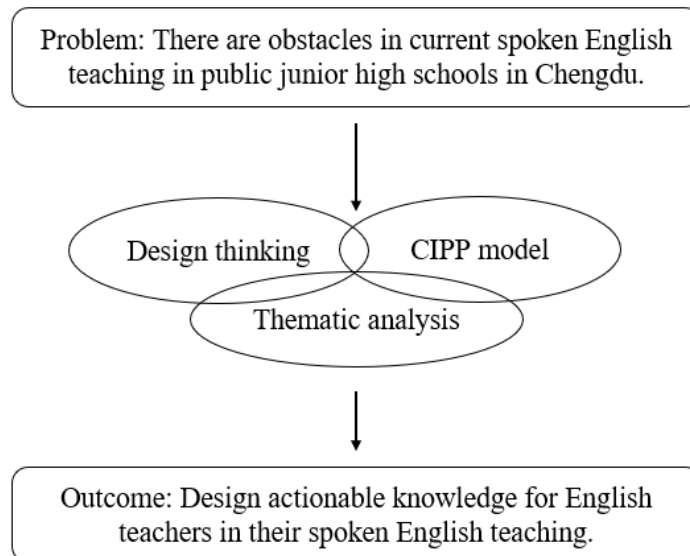


Figure 1: Conceptual framework

Research Objectives

1. To discover key problems and root causes of spoken English teaching in public junior high schools in Chengdu.
2. To determine the important knowledge for addressing the problems faced by spoken English teaching in public junior high schools in Chengdu.

Research Methodology

This research employed a combination of quantitative and qualitative methods. The quantitative component was conducted through questionnaires, while the qualitative component was conducted through semi-structured interviews.

4.1 Participants

This research collected data from English teachers and students in multiple public junior high schools in Chengdu, with a total of 16 English teachers and 384 students participating. Notably, the questionnaire participants included 16 English teachers and 384 students, while the interview participants included 5 experienced English teachers selected from the 16 teachers.

Regarding the student participants, according to statistics from the Chengdu Municipal Education Bureau in 2023, more than 390,000 students are enrolled in public junior high schools. Based on the sampling method proposed by Krejcie and Morgan (1970), a sample size of 384 students was deemed appropriate. The 384 students who participated in the questionnaire were enrolled in public junior high schools in Chengdu, studying in Grades 7, 8, or 9 during the 2023-2024 academic year, and aged from 12 to 15 years old.

Regarding the teacher participants, the 16 English teachers who participated in the questionnaire were selected through purposive sampling based on specific criteria. Firstly, they were required to hold at least a bachelor's degree in a field related to English. Secondly, they needed to have at least one year of experience teaching English in public junior high schools in Chengdu. Nielsen (2000) suggested that 5 participants are sufficient to detect approximately 85% of usability issues. Therefore, this research conducted semi-structured interviews with 5 English teachers, each of whom had at least three years of experience teaching English in public junior high schools in Chengdu.

4.2 Process

This research employed design thinking as the foundational theory, utilizing its “Empathize-Define-Ideate-Prototype-Test” framework to guide the entire research process. Additional theories and tools were integrated to enhance the effectiveness of this research.

The first step is Empathize, which focuses on human-centered needs. With the support of the CIPP model, separate questionnaires were designed for English teachers and students to collect data about the current situation of spoken English teaching. This step aimed to comprehensively understand the situation through the four components of the CIPP model: context evaluation, input evaluation, process evaluation, and product evaluation. Questions related to context evaluation focused on understanding the overall attitudes of teachers and students toward spoken English teaching. Questions related to input evaluation explored the time invested by teachers and students in spoken English and the availability of related teaching resources. Questions related to process evaluation examined the participation enthusiasm of students and the activity arrangements of teachers. Finally, questions related to product evaluation investigated the perceptions of teachers and students regarding the effectiveness of spoken English teaching.

The second step is Define, which involves identifying a feasible goal or perspective for this research. Semi-structured interviews were conducted with 5 English teachers. The interview questions covered topics such as their perceptions of the importance of spoken English teaching, the current situation of spoken English teaching, and their specific teaching activities. Additionally, the most critical questions focused on identifying the key problems in current spoken English teaching and uncovering the root causes behind these problems. As the concluding part of the interviews, teachers were asked to provide suggestions for improving the current situation of spoken English teaching. After the interviews, the audio recordings were transcribed into standardized texts and analyzed using thematic analysis to extract key problems and root causes in current spoken English teaching.

The third step is Ideate, which involves integrating primary and secondary information from multiple sources to generate innovative ideas for addressing the key problems in spoken English teaching. This step embodies divergent thinking. The researcher first filtered feasible suggestions from the interviews with teachers and then summarised critical insights by reviewing relevant literature from CNKI and Google Scholar. These efforts were aimed at generating diverse information about how to address these key problems.

The fourth step is Prototype, which involves organizing the specific information derived from the Ideate step into a feasible set of important knowledge to address the identified problems. This step reflects convergent thinking. Based on the information generated during the Ideate step, this step considered the practical realities of spoken English teaching, including the inevitable constraints of the teaching environment and resources, and filtered out the actionable knowledge. The elicited knowledge was intended to effectively address the key problems in spoken English teaching in public junior high schools in Chengdu.

The fifth step is Test, which aims to validate the applicability of the elicited knowledge in the context of practical spoken English teaching. Based on the important knowledge elicited during the Prototype step and the current situation of spoken English teaching identified during the Empathize step, this step highlighted the advantages of the elicited knowledge through a comparison with the current practices of spoken English teaching.

Therefore, this research was guided by the design thinking process and integrated

questionnaires, semi-structured interviews, the CIPP model, and the thematic analysis at specific steps, ensuring that the entire research was conducted systematically and rigorously.

Results and Discussions

This research aimed to identify the key problems and root causes in spoken English teaching in public junior high schools in Chengdu and to elicit important knowledge for addressing these challenges through the design thinking process.

5.1 Empathize result

Questionnaires for English teachers and students were designed based on the four components of the CIPP model: context evaluation, input evaluation, process evaluation, and product evaluation. Data were collected from 384 students and 16 English teachers in public junior high schools in Chengdu to investigate the current situation of spoken English teaching. Specifically, 384 student questionnaires were distributed, with 378 valid responses received. Similarly, all 16 teacher questionnaires distributed were returned as valid responses.

5.1.1 Context evaluation

In context evaluation, the current situation of spoken English teaching is understood by analyzing students' perceptions of spoken English learning and their surrounding environment using the student questionnaire, as well as teachers' perceptions of spoken English teaching and teaching objectives using the teacher questionnaire.

Table 1: Context evaluation of student questionnaire

Question	Option	Frequency	Percent
1. Importance of spoken English learning	Very important	207	54.76%
	Important	128	33.86%
	Not very important	25	6.61%
	Unrelated to the examination, not important	18	4.76%
2. Perception of English-speaking environment	Very good	25	6.61%
	Good	105	27.78%
	Poor	188	49.74%
	Very poor	60	15.87%
	Total	378	100.00%

According to the table above, 54.76% of students believe that spoken English learning is very important. Additionally, 49.74% of students consider the English-speaking environment to be poor. These results suggest that while most students recognize the importance of spoken English, the existing English-speaking environment is not conducive to their learning.

Table 2: Context evaluation of teacher questionnaire

Question	Option	Frequency	Percent
1. Importance of spoken English teaching	Very important	9	56.25%
	Important	7	43.75%
2. Objective in teaching spoken English	Improve students' communication skills	11	68.75%
	Stimulate students' interest in spoken English	2	12.50%
	Enhance students' spoken performance in class	2	12.50%
	No clear objectives	1	6.25%
	Total	16	100.00%

According to the table above, all 16 English teachers affirm the importance of spoken English teaching. Meanwhile, 68.75% of teachers identify improving students' communication skills as their teaching objective. These results suggest that teachers recognize the significance of spoken English teaching and have a clear objective for their teaching.

5.1.2 Input evaluation

Input evaluation focuses on the time students dedicate to spoken English learning, the time English teachers allocate to spoken English teaching, and their perceptions of resources available for spoken English teaching.

Table 3: Input evaluation of student questionnaire

Question	Option	Frequency	Percent
3. Daily time input in spoken English practice	More than 1 hour	41	10.85%
	Less than 1 hour	100	26.46%
	Occasionally speak with classmates	136	35.98%
	Almost no time	101	26.72%
	Total	378	100.00%

According to the table above, only 10.85% of students practice spoken English for more than one hour per day, while 26.72% of students have almost no time for spoken English practice. These results suggest that the majority of students have very limited time to study and practice spoken English.

Table 4: Input evaluation of teacher questionnaire

Question	Option	Frequency	Percent
3. Spoken English teaching resources (textbooks, multimedia, and online resources)	Very sufficient	1	6.25%
	Sufficient	4	25.00%
	Not very sufficient	10	62.50%
	Not sufficient	1	6.25%
4. Primary time input in English teaching	Text explanation	6	37.50%
	Spoken English practice	1	6.25%
	Grammar teaching	7	43.75%
	Vocabulary teaching	2	12.50%
	Total	16	100.00%

According to the table above, 62.5% of teachers believe that the current resources for spoken English teaching are insufficient. Meanwhile, 43.75% of teachers allocate most of their teaching time to grammar instruction, and 37.5% to text explanation, while spoken English practice accounts for only 6.25%. These results suggest that spoken English teaching is constrained by limited teaching resources and an imbalance between teaching and practice time.

5.1.3 Process evaluation

In process evaluation, the primary focus is to identify students' enthusiasm for spoken English practice, their feelings during spoken English learning, the language used by teachers during instruction, and the arrangement of class activities.

Table 5: Process evaluation of student questionnaire

Question	Option	Frequency	Percent
4. Participation in spoken English practice	Often	103	27.25%
	Sometimes	165	43.65%
	Rarely	82	21.69%
	Never	28	7.41%
5. Anxiety in speaking English	Often	218	57.67%
	Sometimes	116	30.69%
	Rarely	38	10.05%
	Never	6	1.59%
	Total	378	100.00%

According to the table above, 43.65% of students only occasionally participate in spoken English practice, while 21.69% rarely participate. Additionally, 57.67% of students often feel anxious when speaking English. These results suggest that students lack motivation for spoken English practice and experience a certain degree of language anxiety, which means the actual process of students' spoken English learning is both unsatisfactory and ineffective.

Table 6: Process evaluation of teacher questionnaire

Question	Option	Frequency	Percent
5. Class language	Mostly use English	5	31.25%
	A mix of English and Chinese	10	62.50%
	Rarely use English	1	6.25%
6. The most frequent class activity	Text explanation	4	25.00%
	Practice and review	9	56.25%
	Student discussions	3	18.75%

According to the table above, 62.5% of teachers prefer using Chinese to assist their English teaching. Meanwhile, 56.25% of teachers select practice and review as the primary class activity, while none select spoken English practice. These results suggest that English teachers are unable to create an immersive spoken English learning environment, as they primarily rely on traditional and limited teaching methods.

5.1.4 Product evaluation

In product evaluation, the primary focus is to analyze students' subjective evaluations of the current spoken English teaching and teachers' perceptions of the causes and contributing factors behind ineffective spoken English teaching.

Table 7: Product evaluation of student questionnaire

Question	Option	Frequency	Percent
6. Satisfaction with current spoken English teaching	Very satisfied	35	9.26%
	Satisfied	69	18.25%
	Not very satisfied	151	39.95%
	Not satisfied	123	32.54%

According to the table above, 39.95% of students are not very satisfied with the current spoken English teaching, while 32.54% are dissatisfied. These results suggest that a significant gap between students' actual learning experiences and their expectations.

Table 8: Product evaluation of teacher questionnaire

Question	Option	Frequency	Percent
7. The greatest disadvantage in spoken English teaching	Poor foundation of students	5	31.25%
	Low level of teachers	1	6.25%
	Inadequate teaching facilities	2	12.50%
	Inadequate research activities in teaching	8	50.00%
8. The greatest factor affecting spoken English teaching	Pressure of exam-oriented education	10	62.50%
	Insufficient attention from teachers	2	12.50%
	Lack of language environment	3	18.75%
	Lack of spoken English teaching materials	1	6.25%
	Total	16	100.00%

According to the table above, 50% of teachers identify inadequate research activities in teaching as the greatest disadvantage in spoken English teaching, and 62.5% attribute the primary affecting factor to the pressure of exam-oriented education. These results suggest that the lack of professional support for teachers in teaching speaking, combined with the insufficient emphasis on speaking in the current exam-oriented education system, is hindering the effectiveness of spoken English teaching.

To sum up, both English teachers and students generally recognize the importance of spoken English. However, most students are dissatisfied with the current English learning environment. Additionally, many students do not dedicate sufficient time to speaking practice, and teachers often neglect spoken English instruction due to a lack of teaching resources. In the process of spoken English teaching, students exhibit low participation levels, often accompanied by speaking anxiety. Meanwhile, most teachers struggle to create an immersive English-speaking environment and continue to rely on traditional methods, such as practice and review, as the primary class activities. This situation highlights insufficient time and practice opportunities allocated for spoken English teaching. Consequently, most students

remain dissatisfied with spoken English teaching. Teachers, on the other hand, identify the lack of relevant teaching and research activities, along with students' weak foundational skills, as major challenges in spoken English teaching. Furthermore, exam-oriented education and the absence of a supportive speaking environment continue to constrain the effectiveness of spoken English teaching.

5.2 Define result

Following an analysis of the current situation of spoken English teaching, semi-structured interviews were conducted with 5 English teachers, each with at least three years of teaching experience, to explore their perspectives on spoken English teaching and specific instructional methods. The interviews aimed to identify the key problems and root causes of current spoken English teaching. Additionally, the interview questions covered the teachers' career backgrounds, their views on spoken English teaching, the current situation of spoken English teaching in their schools, specific teaching methods and activities, the key problems and root causes, and suggestions for improving spoken English teaching.

5.2.1 Key problems

Using thematic analysis, the frequently mentioned opinions of 5 experienced English teachers during the interviews were interpreted and summarised to identify the key problems in current spoken English teaching.

Firstly, by analyzing the opinions of the 5 English teachers on the key problems in current spoken English teaching, the relevant interview extracts were obtained. Through open coding, the problems repeatedly mentioned by the teachers were identified, and similar problems were grouped under the same code. For example, teachers repeatedly mentioned that students are reluctant to speak English, lack self-confidence, and experience speaking anxiety. These interview extracts were grouped under the code "spoken English anxiety of students", and all codes related to students were grouped under the theme "problems in students". By analogy, the following problems related to students include low spoken English proficiency, ineffective learning methods, and low interest levels; problems related to teachers include limited spoken English skills, and limited teaching methods and contents; problems related to teaching design include insufficient practice in class, tight schedule and heavy workload, and unreasonable curriculum design; problems related to resources include insufficient teaching resources.

Table 9: Key problems in spoken English teaching

Interview extract	Codes	Theme
Students have spoken English anxiety; they are afraid to speak up and lack self-confidence.	Spoken English anxiety of students	Problems in students
Students have incorrect pronunciation and poor speaking skills.	Low spoken English proficiency of students	
Most students rely heavily on rote memorization, leading to the learning of mute English.	Ineffective learning methods	
Many students have a low interest in spoken English learning and academic content.	Low interest levels of students	
Teachers may also have limited spoken English skills, especially older English teachers. While some teachers maintain inaccuracy in spoken English teaching.	Limited spoken English skills of teachers	Problems in teachers
Many teachers still rely on traditional and single teaching methods with limited interaction, and they only use	Limited teaching	

PowerPoint to cover text or examination points.	methods and contents	
Spoken English practice in class is limited due to the tight teaching schedule.	Insufficient practice in class	Problems in teaching design
Our teachers are rushed to cover all the knowledge points, and weekly English classes are limited by a heavy teaching load.	Tight schedule and heavy workload	
Exam-oriented education makes class design put less emphasis on spoken English teaching compared to other arrangements such as reading and writing.	Unreasonable curriculum design	
There are limitations in resources and facilities for spoken English teaching.	Insufficient teaching resources	Problems in resources

In current spoken English teaching, the key problems can be categorized into four aspects. Firstly, in terms of students, there are significant problems such as fear of speaking English, lack of proficiency in spoken English, ineffective learning methods, and low learning interest. These problems greatly undermine their learning efficiency and confidence. In terms of teachers, some English teachers possess limited skills and teaching methods and contents for teaching spoken English. In terms of teaching design, due to limited class time and extensive examination tasks, teachers are overwhelmed with their workload, leaving little time to prioritize non-examination activities such as spoken English. In terms of resources, the textbooks and teaching facilities available for spoken English teaching are insufficient. Therefore, these key problems collectively reflect the challenges in spoken English teaching.

5.2.2 Root causes

After identifying the key problems in current spoken English teaching, the root causes behind these problems were further explored with these teachers during the interviews. Thematic analysis was employed to interpret and summarise the opinions frequently mentioned by the teachers, allowing the identification of the root causes affecting spoken English teaching.

Firstly, by analyzing the opinions of the 5 teachers on the root causes behind the key problems, the relevant interview extracts were obtained. The root causes of the key problems in spoken English teaching were identified using open coding, and similar causes were grouped under the same code. For example, teachers frequently mentioned that students place insufficient emphasis on spoken English and excessively focus on test scores. These interview extracts were grouped under the code “spoken English by students”, and all the codes related to the teachers’ and students’ attitudes toward spoken English were grouped under the theme “attitude factor”. By analogy, causes related to the attitude factor include lack of emphasis on spoken English by students, lack of emphasis on spoken English by teachers, and psychological barriers of students; causes related to the education system factor include constraints of the exam-oriented education, unbalanced focus in the education system, and unreasonable assessment mechanism; causes related to the professional development factor include lack of training for teachers, lack of spoken English guidance; and causes related to the environment factor include lack of language environment.

Table 10: Root causes in spoken English teaching

Interview extract	Codes	Theme
Students tend to neglect spoken English, just focusing on exam scores, with a perception that speaking skills are unnecessary and won't improve grades.	Lack of emphasis on spoken English by students	Attitude factor
Teachers also lack attention to spoken English teaching, as some may just focus on improving students' scores.	Lack of emphasis on spoken English by teachers	
Students have certain psychological barriers.	Psychological barriers of students	
Faced with a rigid and exam-oriented education system, teachers have to simplify spoken English teaching.	Constraints of the exam-oriented education	Education system factor
The current Chinese education system focuses more on the cultivation of reading and writing skills.	Unbalanced focus in the education system	
The assessment mechanism is also very imperfect, still focusing on further study and writing.	Unreasonable assessment mechanism	
There is a lack of professional competence on the part of teachers and fewer opportunities for them to receive training.	Lack of training for teachers	Professional development factor
Many teachers neglect the cultivation of spoken English.	Lack of spoken English guidance	
The main reason is the lack of a spoken English environment, as students only use English in class and lack realistic contexts for practice.	Lack of language environment	Environment factor

The root causes affecting current spoken English teaching can be identified from four aspects. The first is the attitude factor: both teachers and students lack sufficient attention to teaching and learning spoken English, and students face psychological barriers when speaking English. The second is the education system factor: under the pressure of exam-oriented education, the current education system places greater emphasis on listening, reading, and writing, while neglecting the spoken English assessment. The third is the professional development factor: teachers lack access to professional training and seminars on spoken English teaching, resulting in insufficient guidance for students. The last is the environment factor: the language environment is not conducive to students' spoken English learning. These root causes collectively constrain the effectiveness of current spoken English teaching.

5.3 Ideate result

Based on the key problems and root causes of spoken English teaching identified in the Define step, supportive information for addressing these key problems was further collected through interviewing teachers and reviewing related literature.

Firstly, the 5 English teachers were asked to provide specific suggestions for improving current spoken English teaching during the interviews, forming the primary data for this section. Based on the exploration of the key problems in current spoken English teaching, problems were identified as students, teachers, teaching design, and resources. Combined with the specific suggestions mentioned by these teachers, the suggestions were categorized into teaching methods and technology support, student engagement and

interaction enhancement, teacher collaboration and development, and examination mechanism improvement. These categories aim to address the existing problems concerning students, teachers, teaching design, and resources. The following aspects are summarized from the interview data.

(1) Teaching methods and technology support

- 1) Teachers can create a good language environment by organizing role-plays and group discussions.
- 2) Teachers can adopt interactive or student-centered teaching methods, such as project-based learning and cooperative activities.
- 3) Teachers can use technology and multimedia tools, such as language learning software, online interactive platforms, and artificial intelligence.
- 4) Teachers should place more emphasis on pronunciation instruction.

(2) Student engagement and interaction enhancement

- 1) Schools should organize more activities, such as English Corner and English Week, to help students build confidence in their spoken English learning.
- 2) Teachers should design daily English interactions and practices for students.
- 3) Teachers can occasionally reward students with English movies.

(3) Teacher collaboration and development

- 1) Teachers should engage in communication with other teachers.
- 2) Schools can invite native English teachers to provide spoken English training for English teachers.

(4) Examination mechanism improvement

- 1) The examination mechanism should incorporate the spoken English assessment.

Subsequently, suggestions for improving spoken English teaching, as summarised by other scholars, were filtered through a review of relevant literature, forming the secondary data in this section as supplementary information.

(1) Teaching methods and technology support

- 1) Teachers can play English songs and short videos before class to stimulate the interest of students in learning spoken English and create a relaxing teaching environment (Zhang, 2021).
- 2) Teachers should allocate more time to spoken English teaching and provide sufficient opportunities for students to practice speaking (Tang, 2017).
- 3) Teachers can integrate textbook knowledge with practical activities, enabling students to apply what they have learned in daily life (Yang, 2014).
- 4) Teachers can download necessary teaching materials through the Internet and present them using multimedia tools (Yang, 2014).

(2) Student engagement and interaction enhancement

- 1) Teachers should consider students' inner feelings and adopt appropriate strategies to correct their errors during speaking practice (Tang, 2017).

(3) Teacher collaboration and development

- 1) Teachers need to enhance their spoken English proficiency, particularly older English teachers (Tang, 2017).

(4) Examination mechanism improvement

- 1) Teachers should prioritize formative assessments for students (Zhang, 2021).
- 2) Teachers can conduct spoken English assessments through activities such as reading aloud, role-playing, and group discussions (Yang, 2014).

In summary, by integrating the primary data collected from the interviews with the secondary data obtained from the literature review, comprehensive insights into improving spoken English teaching have been derived. This integration facilitates the elicitation of important knowledge to address the key problems in spoken English teaching.

5.4 Prototype result

Based on the collected information, and considering the current situation in public junior high schools in Chengdu, important knowledge has been elicited from the perspectives of teachers' hard skills and soft skills, which can be applied to their spoken English teaching.

Firstly, in terms of teaching methods and technology support, teachers are required to possess hard skills in phonetics instruction and tools application, as well as soft skills in creating language environments and adopting student-centered pedagogical approaches.

Secondly, in terms of student engagement and interaction enhancement, teachers are required to possess soft skills in designing daily speaking interactions and adopting appropriate guidance strategies to foster students' interest and confidence in learning spoken English.

Thirdly, in terms of teacher collaboration and development, teachers are required to possess hard skills in proficient spoken English to enhance their language knowledge and speaking competence.

Finally, in terms of examination mechanism improvement, teachers are required to possess soft skills in observation, analysis, and feedback to provide accurate evaluations of students' spoken English learning processes.

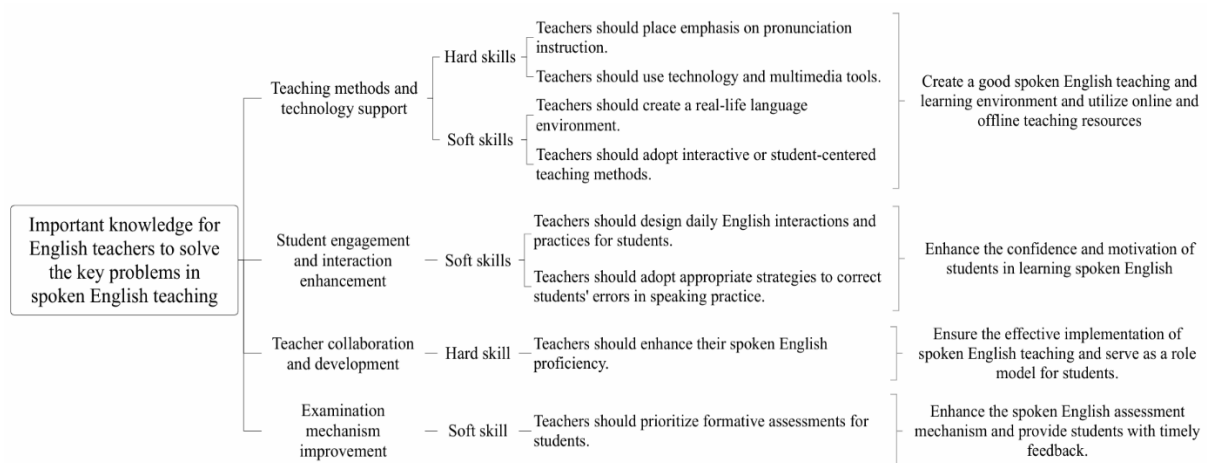


Figure 2: Important knowledge for spoken English teaching

5.5 Test result

Based on the important knowledge derived from the Prototype step and the current

situation of spoken English teaching identified through the questionnaire and interview data, a comparison was made between the elicited important knowledge and the current teaching situation. This comparison highlighted the advantages and applicability of the elicited knowledge.

Currently, English teaching continues to rely on a single teaching approach that primarily focuses on grammar and vocabulary. The teaching process remains dominated by one-way input from teachers. Although PowerPoint is utilized, it merely serves as a tool for presenting knowledge points. However, by emphasizing creating interactive language environments, enhancing pronunciation instruction, and utilizing teaching tools effectively, it is possible to diversify teaching methods and enhance the effectiveness of current spoken English teaching.

Currently, spoken English teaching suffers from a lack of interaction between teachers and students, while students exhibit low motivation due to a lack of confidence in speaking. However, incorporating daily spoken English practice allows teachers to create opportunities for students to engage in speaking activities in a relaxed and supportive environment, thereby effectively boosting their enthusiasm and motivation.

Currently, the limited spoken English proficiency of English teachers hinders their competence in teaching spoken English. However, by participating in targeted training programs and learning from exemplary teaching practices, teachers can not only improve their spoken English proficiency but also achieve a comprehensive enhancement in their teaching competence.

Under the influence of exam-oriented education, the current examination mechanism prioritizes listening, reading, and writing, while speaking lacks sufficient support from the current evaluation system. Since summative assessments are typically designed by schools or education departments, teachers can only provide students with formative assessments by focusing on their performance during the process of learning spoken English. This strategy facilitates the integration of teaching, learning, and assessment in spoken English teaching.

Conclusion

This research aimed to elicit important knowledge for addressing the key problems in current spoken English teaching in public junior high schools in Chengdu through the design thinking process. The five steps of the Empathize-Define-Ideate-Prototype-Test in the design thinking process effectively enabled the researcher to identify the key problems and root causes in spoken English teaching and elicit knowledge that could serve as practical references for English teachers in improving teaching spoken English.

In the Empathize step, teacher and student questionnaires were combined with the CIPP model, revealing that both teachers and students recognize the importance of spoken English teaching; however, many obstacles persist in actual practices. In the Define step, semi-structured interviews with experienced teachers and thematic analysis were employed to identify the four aspects of key problems in spoken English teaching: teachers, students, teaching design, and resources. Subsequently, the four aspects of root causes, which are attitude, education system, professional development, and environment, were also identified. In the Ideate step, primary and secondary data were collected through interviews and a literature review, using divergent thinking to gather relevant information for addressing the current challenges in spoken English teaching. In the Prototype step, based on the actual situation of spoken English teaching in public junior high schools in Chengdu, a set of important knowledge was filtered from the previously gathered information. In the Test step, the advantages and applicability of the elicited important knowledge were validated by

comparing it with the actual teaching situation. This research confirmed that there is a significant gap between the current spoken English teaching in public junior high schools in Chengdu and the expectations of teachers and students. The elicited knowledge not only serves as a practical reference for English teachers but also helps them improve spoken English teaching. Furthermore, the important knowledge contributes to the positive development of spoken English education.

However, this research primarily focused on spoken English teaching in public junior high schools in Chengdu, which limited the applicability of its findings to other educational contexts. Additionally, while this research proposed important knowledge to address key problems in spoken English teaching, it did not develop a specific teaching framework to guide English teachers in implementing spoken English instruction in a more detailed manner. Therefore, further research should integrate the elicited important knowledge with specific teaching models and place greater emphasis on how to efficiently utilize the limited time available for spoken English teaching in actual class settings. Despite these limitations, the elicited knowledge enables English teachers to strengthen their hard skills in language use and technology integration while enhancing their soft skills in interactive teaching and formative assessments. These improvements can help English teachers effectively address the current challenges in spoken English teaching and ultimately enhance the overall effectiveness of spoken English teaching.

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