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The University of San Francisco

**TEACHING CRITICAL THINKING SKILLS
IN A CHINESE IMMERSION SCHOOL**

A Dissertation Presented

to

The Faculty of the School of Education

Department of Leadership Studies

Organization & Leadership Program

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education in Educational Leadership

Helen Wong

San Francisco

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ABSTRACT

As a frontline teacher and administrator, I received feedback consistently from parents and students asking for a fun and effective method of instruction for Chinese language development in the US. This study explored the micro-level of how teachers in Chinese immersion schools create an environment to support development of students' critical thinking skills while learning Chinese. I applied a qualitative approach to the research and designed a case study focused on answering the following research questions: How do teachers help their students to develop critical thinking skills when teaching in a Chinese immersion program? What are the challenges teachers have when teaching critical thinking skills in a Chinese immersion program? What is the instructional support needed that would influence practices in teaching critical thinking skills in a Chinese immersion program? The study revealed that Chinese language becomes a communication medium to enhance students' cognitive development when teachers strategically pose high-level thinking questions to create a space where students can actively exchange and learn from each other. When approached and applied with purpose, Chinese language becomes a necessary language for US students to increase their ability to employ necessary cognitive and social strategies, and to think flexibly and abstractly about their lives. This study also revealed that instructional leadership has a strong influence on the efficacy of teachers' professional development.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

Pui Hung Helen Wong
Candidate Date

December 7, 2021

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CHAPTER I: INTRODUCTION

Problems of Practice with Chinese Language Learning in the United States

I have been working as a Chinese teacher and program director in a Chinese immersion elementary school in California in the United States since 2001. Each year, I receive families who request a transfer to our program from other Chinese schools. During the enrollment interviews, I usually find out that the learning motivation of the transferring students is low. Although they have been learning Chinese for years, they are not able to use Chinese to communicate. In fact, they refuse to use Chinese as much as possible. When I ask students why they don't want to learn Chinese, they almost always say that Chinese is useless, the class is boring and hard, and they only memorize characters and recite the text to their teachers. The parents of these children have reported that the former teachers did not engage students very well. These teachers only focused on teaching reading and writing during the Chinese class, but the students did not fully understand or become engaged in the text. The evidence shows that the students can read the text aloud but they do not understand the meaning.

As I began teaching Chinese in the United States over 20 years ago, I quickly discovered that the key to motivating learning in this environment is the use of the Chinese language in everyday activities.. Chinese language becomes meaningful when students need it to play with their friends, to interact with their teachers, to share ideas with others, to negotiate deals, and to argue points of interest. When students are engaged in meaningful dialogues, their Chinese language skill develops naturally and effectively. As a Chinese immersion program leader, I found that some Chinese teachers find it difficult to understand how important it is for a Chinese teacher to shift their teaching

approach from “I am going to teach you Chinese; just follow me,” to “I am here to invite you to discover something fun for you and I am here to help you communicate your thoughts in Chinese.” It is even harder to expect that teachers will naturally create such an inviting and stimulating Chinese language environment for their students without direction. Since the day I was promoted to principal of a Chinese immersion school, I have scheduled weekly teaching preparation time with each individual teacher to provide my support and guidance. I have spent almost a quarter of my time each day to observe how my teachers teach their students in and out of their classrooms. I also created a critical peer learning platform to encourage teachers to share their teaching experiences and learn from each other.

I would argue that teaching should emphasize how to create a learning environment where the Chinese language is a communication medium to enhance students’ cognitive development, to increase students’ ability to employ necessary cognitive and social strategies, and to think flexibly and abstractly about their lives. While planning for their class, Chinese teachers should consider how the linguistic knowledge links to students’ interest and how the class project offers a communication tool for knowing oneself, connecting with others, and discovering the world.

Background and Need

In a Chinese immersion program, if a teacher is only focused on passing down the knowledge of a language, the class becomes less interesting and practical for students because Chinese is not required in America. Language is far more than the simple expression of thoughts, feelings, and experiences. As psychologist Lev Vygotsky (1978) said, language actually shapes thoughts, feelings, and experiences. It produces

“fundamentally new forms of behaviors” (p.24). It is through language that children come to know the world (Vacca, Vacca, Gove, 1995). Such a close relationship between language and thinking skills has long been recognized by theorists and educators (Piaget, 1971; Vygotsky, 1962).

As Freire (1970) further points out, dialogue “is the encounter between men, mediated by the world in order to name the world” (p. 69). He also adds that “only the dialogue, which requires critical thinking, is also capable of generating critical thinking. Without dialogue there is no communication, and without communication, there can be no true education” (p. 73).

Authentic intellectual engagement requires a deeper reciprocity in the teaching-learning relationship where students’ engagement begins as they actively construct their learning in partnership with teachers, work toward deep conceptual understanding, and contribute their own ideas to building new knowledge or devising new practices in activities that are “worthy of their time and attention. (Friesen, 2008, p. 8, as cited in Dunleavy & Milton, 2009, p. 14)

Kabilan (2000), a researcher who studies language acquisition, argues that in order to help students become proficient in a language, teachers must instill the ability for students to think creatively and critically when using the target language. This insight was based on his experiences researching language education. It is believed that developing students’ ability to reflect on their own learning process can help them progress in learning. Higher-order thinking skills promote higher-order learning skills, which in turn enable students to reach higher levels of language proficiency (Renner, 1996).

It is clear to me that to engage Chinese learners in America to learn Chinese effectively, we cannot merely focus on linguistic knowledge. We should put effort into creating an environment where Chinese language is the basis for teachers and students to connect with each other. These connections must involve higher-order thinking skills so that students are actively constructing their ideas in Chinese in their minds and trying to express themselves in Chinese orally or in written form.

Purpose of the Study

With the rapid rate of globalization and China's increasingly important role in the world economy, global economic forces have restructured Chinese education opportunities and schooling here in the U.S., and people now see value in being fluent in Chinese (Walton, 1996). Thus, the trend of sending children to learn Chinese in the United States has been expanded from minority Chinese-speaking communities to other ethnic communities. The data show that Chinese immersion (CI) programs are flourishing nationally in K-12 settings, increasing from 89 in 1998 to 265 in 2018 (Weise, 2018). Although the significance of studying Chinese and English bilingual education has dramatically increased (He, 2008; Zhang & Slaughter-Defoe, 2009), the context of K-12 Chinese immersion classrooms has not been adequately addressed in the literature. Most of the research has been done in finding the value of learning Chinese by examining students' academic achievement. Multiple scholars (Freeman, 1998; Saxena & Martin-Jones, 2013; Tarone & Swain, 1995) have postulated that investigating micro-level social interactions and discourses in bilingual classrooms is critical for the effectiveness of bilingual education.

This study will explore the micro-level language use in a Chinese-English Dual Immersion classroom to see how the teachers create an environment that supports the development of students' critical thinking skills while learning Chinese. This study also aims to further understand what support teachers may need to implement effective teaching practices.

Research Questions

The teaching objective for Chinese dual immersion programs in the United States should be to engage students in meaningful conversation where the Chinese language is needed for their critical thinking skill development and is used authentically for Chinese learners to think, express, and construct their knowledge system. In this study I will look into how teachers create such a learning environment by posing higher-level thinking questions to connect students' real-life experiences with academic content.

My research questions are designed to help me gain a better understanding of how the Chinese immersion program supports the development of elementary school students' critical thinking skills while learning Chinese and also to identify the support that teachers need to improve their teaching. The research questions are:

1. How do teachers develop critical thinking skills when teaching in a Chinese immersion program?
2. What are the challenges teachers face when teaching critical thinking skills in a Chinese immersion program?
3. What kind of instructional support is needed to improve the teaching of critical thinking skills in a Chinese immersion program?

Research Limitations

First of all, in the research design phase, my study will be primarily concerned with the teachers' repertoire. Therefore, I am not considering the learners' perspective, which could be a topic for further research.

Second, due to the COVID-19 pandemic, the learning format being offered is a hybrid model. In Jianji Chinese Immersion School, the hybrid model means that students can choose to take classes virtually or in-person. In this model, all students take the class at the same time, regardless of whether it is virtual or in-person. This new teaching and learning model inevitably results in some learning delays when teachers involve both groups of students in group discussions.

Third, COVID-19 issues also require that my interviews with teachers will need to be conducted virtually. The virtual format of the interview may impact my ability to do a complete video recording; for instance, I may not be able to capture subtle body movements or nonverbal expressions. These limitations in this study present opportunities for future study and investigation.

Definition of Terms

The following section defines frequently used terms in this study:

- **Immersion Education:** A language program whereby most of the school day is taught in the target language, beginning in Kindergarten or Grade 1 (early immersion), Grade 4 or 5 (middle immersion), or Grades 6 to 8 (late immersion)

- Chinese / English Dual Language Bilingual Education program (DLBE): Students spend part or all of the school day taking regular academic courses, such as math, science, and social studies, in Chinese. These programs come in different types of formats. Some programs start with 90% of the instruction in Chinese and 10% of the instruction in English. The English instructional time decreases gradually until the courses are eventually 50% instructional time in both languages.
- Mandarin Chinese: The standard literary and official form of the Chinese language (Pearsall, 2001). Putonghua is the dialect and Hanzi is the written form.
- Critical Thinking: Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes adherence to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem solving abilities, as well as a commitment to overcome native egocentrism and sociocentrism (p. 1). Students should understand:

the relationship of language to logic ... (or have) the ability to analyze, criticize, and advocate ideas, to reason inductively and deductively, and to reach factual or judgmental conclusions based on sound inferences drawn from unambiguous statements of knowledge or belief ... (or acquire) the ability to distinguish fact from processes, including an understanding of the formal and informal fallacies of language and thought. (Scriven & Paul, 2004, p. 23)

CHAPTER II: LITERATURE REVIEW

This chapter is composed of three parts. The first part includes a theoretical framework for explaining what critical thinking skills are and how to teach critical thinking. Next, it discusses the features of the Chinese language and different types of Chinese language programs in the United States. In the third part of this chapter, I present the research findings related to the challenges faced by Chinese teachers when they teach in Dual Language Bilingual Education (DLBE) programs in the United States and the findings related to Chinese teachers' professional development. Studies of other dual language programs have shown that teachers in DLBE programs need customized assistance.

Critical Thinking Skills

The concept of critical thinking was first singled out just 100 years ago by the American philosopher John Dewey. In his book, *How We Think*, first published in 1910, Dewey presented what he called "reflective thinking" as the active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it leads (Dewey, 1910, p. 6).

Ennis (1987) suggests that "Critical thinking is reasonable reflective thinking focused on deciding what to believe or do." Its key component skills include: clarifying meaning, analyzing arguments, evaluating evidence, judging whether a conclusion follows, and drawing warranted conclusions. Critical thinking is recognized as an important competency for students to acquire in academic language (Connolly, 2000; Davidson, 1998; Davidson & Dunham, 1997). Kress (1985) further postulates that critical thinking is a social practice of language itself.

Critical thinking for Freire (1970) was not an object lesson in test-taking, but rather a tool for self-determination and civic engagement. According to Freire, critical thinking is not about the task of simply reproducing the past and understanding the present. On the contrary, it is about offering a way of thinking beyond the present, soaring and imagining a future that would not merely reproduce the present. The most developed sub-skills of critical thinking have been advanced by Glaser (1941), Ennis (1987), Facione (1990), Fisher (2001), and Fisher and Scriven (1997). Ennis (1962, 1987) and Facione (1990) have provided elaborate descriptions of sub-skills. Despite differences, their lists share the following component skills of critical thinking, all including the ability to:

- Clarify meaning
- Analyze arguments
- Evaluate evidence
- Judge whether a conclusion follows
- Draw warranted conclusions

A critical thinker not only possesses critical thinking skills but also exercises them when (and only when) it is appropriate to do so. Such tendencies are called dispositions, which are reflected in a person's mental attitudes. The most developed conceptualizations of the dispositional and attitudinal components of a critical thinker have been advanced by Glaser (1941), Ennis (1996), and Facione (1990), which share these dispositional and attitudinal characteristics of a critical thinker:

- Open-minded
- Fair-minded

- Searching for evidence
- Trying to be well-informed
- Attentive to others' views and their reasons
- Proportioning belief to the evidence
- Willing to consider alternatives and revise beliefs

Scriven and Paul (2004) stated,

Critical thinking is that mode of thinking about a subject, content, or problem in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command and their use. It entails effective communication and problem solving abilities, as well as a commitment to overcome our native egocentrism and sociocentrism. (p. 1)

Furthermore, students should understand:

the relationship of language to logic (or have) the ability to analyze, criticize, and advocate ideas, to reason inductively and deductively, and to reach factual or judgmental conclusions based on sound inferences drawn from unambiguous statements of knowledge or belief (or acquire) the ability to distinguish fact from processes, including an understanding of the formal and informal fallacies of language and thought. (Scriven & Paul, 2004, p. 23)

Teaching Critical Thinking Skills

Research evidence has shown that cognition and language development are closely related. It is through language that children come to know the world (Vacca, Vacca, & Gove, 1995). Such a close relationship between language and thinking skills has long been recognized by theorists and educators (Piaget, 1971; Vygotsky, 1962). Therefore, higher levels of language proficiency are contingent on students' development of higher-order thinking skills.

Liaw (2007) conducted a study to examine junior high students learning English as a second language. The study's findings reveal that critical thinking is an ongoing process in which all language learners must engage, regardless of their language proficiency level. Critical thinking involves the use of information, experience, and world knowledge in ways which allow language learners to seek alternatives, make inferences, pose questions, and solve problems, thereby signaling understanding in a variety of complex ways. Similarly, modern foreign language educators have also begun to emphasize the importance of thinking skills (Liaw, 2007). Their emphasis is not only on learning language, but also on using the language as a medium to learn mathematics, science, social studies, or other academic subjects.

The Qualifications and Curriculum Authority (2001-2002), a non-departmental organization sponsored by the Department of Education and Skills in the United Kingdom, asserts that modern foreign language teaching must incorporate activities to help students reflect on their own thinking processes and language-learning strategies. It further outlines activities to include: (a) identifying and understanding the links between the target language and native language in lexis, syntax, and grammar; (b) drawing

inferences from unfamiliar language and unexpected responses; (c) using their knowledge of grammar to deduce the meaning of new words and structures; (d) using language creatively to express their ideas, attitudes and opinions; (e) adapting and revising language for their own purposes; (f) identifying and using language patterns; and (g) devising their own language-learning strategies.

In addition, Abrami et al. (2015) summarize the available empirical evidence on the impact of instruction on the development and enhancement of critical thinking skills and dispositions and student achievement. Their review includes 341 examples drawn from quasi- or true-experimental studies that used standardized measures of critical thinking skills as outcome variables. Results demonstrate that there are effective strategies for teaching critical thinking skills, both generic and content specific, as well as critical thinking dispositions at all educational levels and across all disciplines. Notably, the opportunity for dialogue, exposure of students to authentic or situated problems and examples and mentoring all had a positive effect on critical thinking skills. Abrami et al. (2015) further explain the three key factors: dialogue, anchored instruction, and mentoring:

1. Critical dialogue, which historically goes back to Socrates, is a method in which individuals discuss a problem together. The dialogues can be oral or written, and cooperative or adversarial. They can take the form of asking questions, discussion, or debate. Some curricula designed to promote critical thinking establish *communities of inquiry* among the students.

2. Anchored instruction is an effort to present students with problems that make sense to them, engage them, and stimulate them to inquire. Simulations, role-playing, and presentation of ethical dilemmas are methods of anchoring.
3. Mentoring describes a one-on-one relationship in which someone with more relevant expertise interacts with someone less experienced. The mentor acts as a model and as a critic, correcting errors by the mentee.

The concept of the *Zone of Proximal Development (ZPD)* was developed by psychologist and social constructivist Lev Vygotsky (1896 –1934). The ZPD refers to the difference between what a learner can do on their own without help and what he or she can achieve with guidance and encouragement from a skilled partner. Thus, the term “proximal” refers to those skills that the learner is “close” to mastering. Vygotsky believed that when a student is in the ZPD for accomplishing a particular task, providing the appropriate assistance will give the student enough of a "boost" to achieve the task.

Wood et al. (1976) define scaffolding as a process "that enables a child or novice to solve a task or achieve a goal that would be beyond his unassisted efforts" (p. 90). As they note, scaffolds require the adult is "controlling those elements of the task that are initially beyond the learner's capability, thus permitting him to concentrate upon and complete only those elements that are within his range of competence" (p. 90).

Scaffolding is a key feature of effective teaching, where the adult continually adjusts the level of their help in response to the learner's level of performance. In the classroom, scaffolding can include modeling a skill, providing hints or cues, and adapting material or activity (Copple & Bredekamp, 2009).

Critical thinking skills and language development are closely related. In other words, the teacher uses the target language to stimulate critical dialogue, anchored instruction, and mentoring not only to scaffold the content and target language development, but also to enhance development of the students' critical thinking skills.

Chinese Language Features

English and Chinese are typologically different languages with radically different orthographic systems. The Chinese language is actually not one single language, like English or Spanish (although some might argue that Spanish is different between countries), but rather is a family of languages and dialects. There are over 100 various Chinese dialects throughout different geographical regions of China, and most of them are not mutually intelligible; however, the Chinese can communicate through the common written language, *Zhongwen* (中文) (Center for Applied Linguistics, 2013). The official spoken dialect of the Chinese people is Mandarin (or Guóyǔ (国语, called the national language in Taiwan, the Republic of China), or Pǔtōnghuà (普通话, common speech) in the People's Republic of China (also known as Mainland China). Mandarin is spoken in most of China, Taiwan, Singapore, Malaysia, and several other Southeast Asian countries. Other popular dialects include Cantonese, the official language of Hong Kong and Hokkien, and Taiwanese, the official language of Taiwan (Asia Society, 2012, 2014).

The writing system of Chinese is different from the English alphabet system and relies on phonemes with graphic symbols (Center for Applied Linguistics, 2013). Chinese characters are logographic based on morphemic, meaning-bearing syllables with graphic

units. Chinese writing is nonlinear, and each character represents a word or part of a word. Prior to the establishment of Communism, officially begun in 1949, China's written language was based upon traditional characters (Center for Applied Linguistics, 2013). Under new political leadership, China developed a simplified written language that reduced the number of strokes of traditional characters to a type of shorthand to help citizens gain literacy skills more quickly. They also utilized the Roman alphabet to spell the pronunciation of Chinese characters, which is called Pinyin (拼音). Pinyin is used to teach students to type Chinese characters on the computer as well as to learn how to read and write in Chinese. Not counting tones, there are over 400 (416 in the Xinhua dictionary, the most authoritative dictionary published in China) syllables in standard Mandarin. Studies of both Chinese in foreign language (CFL) and Chinese as second-language (CSL) contexts report that recognizing Chinese characters is the most challenging reading task for English speakers (Everson, 1998).

A survey of nearly 900 million words used by the mass media in the National Language Resources Monitoring Corpus in 2020, found that 557 high-frequency Chinese characters cover 80% of the entire corpus, and 877 high-frequency Chinese characters cover 90% of the entire corpus. 2247 high-frequency Chinese characters cover 99% of the entire corpus (The Report of the development status of Chinese language and writing industry and the status of Chinese language life, 2020). According to the Center for Applied Linguistics (2013), a well-educated Chinese reader is able to recognize between 4,000 to 6,000 characters, while reading a newspaper requires about 3,000 characters. In Jianji, when students graduate at fifth grade, they are required to have mastered 2500 characters.

A Chinese character is composed of strokes interwoven in patterns to form chunk(s)² in a square-like form. However, what make Chinese visual orthography strikingly different from other languages is its large number of orthographic units (i.e., stroke, chunk, radical, and character) and their complex combinations (DeFrancis, 1989). Five basic strokes (i.e., horizontal stroke, vertical stroke, slant stroke, point stroke, and angled stroke) can yield up to 44 additional variations of stroke shapes (Wang, 2011). These strokes combine to form 439 chunks. Most of these chunks must follow certain positional constraints (i.e., spatial layouts) within the two-dimensional square to form compound characters, which accounts for 80% of the character types of 7000 frequent characters (Chinese Language Committee, 2009).

In addition, the semantic–phonetic character, representing over 80% of modern Chinese characters, comprises both a radical and a phonetic (e.g., Shu, Chen, Anderson, Wu, & Xuan, 2003), conveying rough cues, respectively, to the sound and meaning of a given character. For example, the character 睛 is pronounced /jing 1/; this is identical to the sound of its right-hand phonetic 青/qing1/. Its left-hand radical, 目 , further indicates that the character involves an eye-related concept. Thus, within this character, the reader has cues both to the meaning (i.e., related to eye) and sound (i.e., pronounced as /qing1/). Radicals and phonetics are unique sub-character units that coexist in structuring a Chinese character, and their functions are mutually exclusive.

A group of researchers (Cao et al., 2013b) suggests that when characters are taught in a curriculum with enough emphasis on their shared chunks, the learners’ visual–orthographic representation of characters can be strengthened because attention is drawn to such decomposed structures and smaller components of a character. Furthermore, they

pointed out various encoding methods—handwriting, stroke animation, and visual chunking—on character forms can strengthen orthographic constituents and their connections to semantics and phonology. Remembering the chunks of a character, which on average has 15 strokes, would therefore greatly reduce visual memory load. In an event-related potential study, Cao et al. (2013b) found that, although a visual chunking condition did not outperform handwriting and passive reading in behavioral data, chunking during learning later elicited greater amplitudes in the N170, an event-related potential indicator of orthographic recognition.

Current Chinese Language Programs

According to the Asia Society (2010), there are two main types of Chinese language schools in the United States, Chinese heritage language schools and regular full-day schools. Chinese heritage schools are open on weekends or after regular school hours. For weekend programs, classes are held three hours a week on Friday evening or during the day on Saturday or Sunday. The other types of programs are listed in Table 1.

At one end of the spectrum are the “foreign language exploration” (FLEX) programs that introduce children to other cultures and to language as a general concept. Since FLEX classes meet only once or twice a week, such programs do not have linguistic proficiency as the goal. Instead, their objective is to provide valuable motivation for students to learn languages later and for districts to start language programs.

Table 1

Different Types of Chinese Language Schools

Type	Format	Goals
Foreign Language Exploration (FLEX)	Classes meet only once or twice a week	Develop interest, basic knowledge toward Chinese language and Chinese culture
Regular Bilingual program	Regular academic courses are almost all taught in Chinese	Reach high proficiency and literacy in Chinese

Source: Asia Society, Council of Chief State School Officers' EdSteps Project, Global Competence Matrix for World Languages, http://www.asiasociety.org/files/GlobalCompetency_EdSteps_RequestforWorkSamples.pdf

At the other end of the spectrum is regular bilingual programs in which children spend part or all of the school day taking academic courses, such as math, science, and social studies in Chinese. Tian's (2020) research data show that there are 286 English/Chinese dual language bilingual education programs (DLBE) in the United States.

As shown in Table 2, bilingual programs come in different types of formats. The one in this study is a 90/10 model, which means 90% of daily instruction is taught in Chinese, and the remaining 10% is in English. As grade levels progress, English instructional time will gradually increase to 50/50 by 5th grade. The 90/10 model requires an initial emphasis on the minority language because this language is less supported by the broader society and, thus, academic uses of this language are less easily acquired outside of school (Collier & Thomas, 2004). Research studies on this model have indicated high academic achievement for both groups of students (native and non-native speakers) (Genesee, 1987; Lindholm-Leary, 2004).

As Christian (1994) states:

a typical dual immersion program has these three goals: 1) Language development (bilingual): students will become proficient in their first language and a second language; 2) Academic development (biliterate): students will perform at or above grade level in both languages; 3) Social development (bicultural): students will develop strong cross-cultural attitudes, behaviors and have a positive self-image. (p. 3)

Table 2*Bilingual Programs in the United States Today*

Program	Language Used	Components	Duration
Transitional Bilingual Education (Early Exit)	90-50% of instruction initially in the minority language Increasing percentage of English used over time, up to 90%	Initial literacy and some subject matter instruction in the minority language ESL and subject matter instruction at students' level of English	1-3 years Students exit when they are proficient in English
Developmental Bilingual Education (Late Exit)	90-50% of instruction initially in the minority language Gradual decreasing to 50% or less of home language use by grade 4, or a 50/50 from beginning	Initial literacy in minority language, and some subject instruction in minority language ESL initially and subject matter instruction at students' level of English	5-6 years
Two-Way bilingual Education (Two-way Dual Language, Two-Way Immersion, Dual Immersion, Dual Language)	90-10 model: 90% minority language, 10% other language in early grades, moving to 50:50 model: parity of both languages	Emergent bilinguals and native English speakers are taught literacy and subjects in both languages Peer tutoring	5-6 years

Source: Adapted from "Learning in two languages: Programs with political promise" by U.S. Aldana, P.Z. Morales, 2010. In *English learners and Restrictive Language Policies* by P. Gándara, & M. Hopkins (Eds.), 2010 (pp. 159-174). New York: Teachers College Press.

Becoming literate in both Chinese and English language depends on the quality of teaching, which consists of the content coverage, intensity or thoroughness of instruction, and methods used to support the individual's learning by posing higher-level thinking questions to allow individuals to construct their knowledge system. When Chinese teachers in dual language programs teach with an aim for students to reach these goals, they often face many difficulties. These challenges must be studied closely in order to provide professional assistance for the development of students' critical thinking skills.

Challenges for Chinese Teachers to Teach in Chinese/English DLBE Programs

Traditional Chinese education emphasizes the accumulation of knowledge, and traditional Chinese culture emphasizes “maintaining a hierarchical but harmonious relationship between the teacher and student” (Hu, 2002, p. 98). A study of seven teachers in K-12 DLBE schools found that these teachers tended to teach in the same way they were taught in China, and quickly discovered that this method did not work in the U.S. classroom. However, transforming their teaching to better support U.S. expectations led to great frustration. In the study, teachers were unable to create an equal and open space where everyone was free to express and participate in real conversations themselves. Similarly, Xu's study (2012) of seven native-speaking Chinese teachers revealed misunderstandings due to their erroneous assumption of authority in the classroom, which caused classroom management problems.

Yue (2017) points out that one major teaching obstacle for Chinese teachers in DLBE programs is how to teach distinctive linguistic features of Chinese. This issue lies in the language's unique logographic system (opaque orthography) with its sound relationships, different orthographic rules, and tonal features. Chinese teachers always

struggle with keeping a fine balance between raising and sustaining the students' motivation while ensuring that they are not intimidated by the vocabulary or bored by memorization work.

Several researchers (such as García 2009, Zhang, D. & Slaughter-Defoe, D.T. 2009) have called for developing flexible, multilingual spaces where the dynamic nature of bilingualism can be recognized to include bilingual learners' full linguistic repertoires. Translanguaging practices (García, 2009) are defined as allowing the use of mixed languages; students are better able to speak freely with the teacher and are more likely to learn when they are permitted to mix languages; this can help them "make sense" of teaching and learning. Tian (2020) points out that using multiple languages in a shared space, allowing English and Chinese languages to mix while teaching, can foster a critical translanguaging space. This happens by recognizing language hierarchies within particular socio-linguistic spaces. Such a dialogic classroom environment encourages students to experiment with language and draw upon their entire linguistic repertoire for meaning-making, while also prioritizing the minority language and its speakers.

Professional Development for Chinese Teachers

Scholar Ingersoll (2002) investigated the possibility that the organizational characteristics and conditions of schools are driving teacher turnover. The analysis indicated that, despite investing four or five years of time and money in a college education, spending hundreds of hours observing teachers in the classroom, completing a semester as a student teacher, and obtaining a job in a very competitive field, 46% of new teachers nationwide leave the profession within the first five years of service. Studies have shown that many talented, new teachers are leaving the profession early in their

careers due to job dissatisfaction and pursuit of more satisfying jobs. Chan Lu and Magaly Lavadenz (2014) point out that novice Chinese teachers desired large “doses” of practical pedagogical strategies; the development of those strategies required that teachers have ample opportunities for thoughtful anticipatory and retroactive reflection centered on student learning and grounded in the knowledge of language-specific pedagogical content knowledge. The results of their study highlighted the importance of fostering Chinese pedagogical knowledge through anticipatory instructional planning and reflection for apprentice Chinese language teachers as they enter the profession.

In the study of experiences of two-way immersion teachers (Howard, & Loeb, 1998), the participants highlighted some key elements that they considered critical for prospective teachers to be successful. They emphasized the importance of familiarity with grade-level curriculum, beliefs in themselves and their students, competency in applying a variety of teaching techniques, and possession of cross-cultural and linguistic knowledge to work with parents in both languages.

Rinehart (2017) and August and Shanahan (2006) pointed out that educational leadership is the number one variable in professional development linked to effective teaching. Lindholm-Leary (2005) identified several tasks that leaders of dual language immersion (DLI) programs must do. One of the leader’s tasks is making sure that the resources, training, and materials needed for equitable learning are made available for the DLI program. Researchers point out that the principal is also responsible for instructional leadership (Cloud, et al., 2013; Lindholm-Leary, 2001). For example, Blase and Blase (2000) found that principals who were successful educational leaders encouraged the professional development of their teachers by providing time for feedback, reflection, and

collaboration. According to Lunenburg (2013), “Teachers need to be provided with the training, teaching tools, and the support they need to help all students reach high performance levels” (p. 4).

Other research indicates that leadership does not rest solely on one individual. Hunt (2011) conducted a case study of three dual immersion language programs in New York that had been open for at least ten years. The findings showed that principal leadership that focused on building the collective capacity of the staff helped to sustain the programs. The data revealed that collaborative leadership enabled the team to work through problems and challenges as well as appease larger bureaucratic mandates, without compromising their mission. This endeavor requires leaders who are creative, possess an independent spirit, and have an ability to find win-win solutions.

Summary

In summary, creating a safe space to allow for students to engage in critical dialogue not only enhances students’ acquisition of the target language, but also connects their language learning with real life situations so that the language becomes the tool of communication. For example, when students are asked about what they would do differently in a given situation or are asked about what help they need in order to complete a task, their previous life experience is relevant to their language learning. As a result, their opinions are valued in the learning process, leading to the language becoming real and practical to them.

Unfortunately, creating a learning environment that achieves that goal seems especially challenging for Chinese language teachers when they teach Chinese in the

United States. For example, U.S. students are not accustomed to the large amount of rote memorization that Chinese language instruction requires. Many Chinese teachers prefer top-down teaching in which the teacher is the recognized authority. This teacher-as-authoritarian role can prevent teachers from creating an environment that allows for critical dialogue in their DLBE classes.

Thus, more research is needed on teacher practices that foster critical thinking in Chinese immersion classrooms. As discussed above, we have learned that teachers' effectiveness increases when provided with opportunities for hands-on practice with techniques readily applicable in their classrooms, in-class demonstrations with their own or a colleague's students, or personalized coaching. This study will investigate how teachers in a Chinese immersion program can better develop their students' critical thinking skills. Also, it will identify what support teachers need in this process and how to provide that support to influence their teaching practice.

CHAPTER III: METHODOLOGY

Restatement of Purpose

Teaching critical thinking skills is a necessary part of Chinese English DLBE programs, but there are challenges in doing so. No existing research specifically explores how Chinese teachers teach critical thinking to their students in the classroom through a discourse analytical lens, even though this is important knowledge. The purpose of this research was twofold: to investigate how the Chinese teacher teaches critical thinking skills to elementary school students, and to identify the support that teachers need to implement this into their teaching practice. Three research questions were developed to assist the study:

1. How do teachers develop critical thinking skills when teaching in a Chinese immersion program?
2. What are the challenges teachers have when teaching critical thinking skills in a Chinese immersion program?
3. What is the instructional support needed that would influence the practice in teaching critical thinking skills in a Chinese immersion program?

Research Design

To answer these research questions, I investigated the practices of Chinese teachers and their thoughts on how they teach critical skills in their classrooms in a local Chinese English DLBE program. I applied a case study method.

A case study aims to describe a phenomenon (the case) in its real-world context by “retaining a holistic and real-world perspective” (Yin, 2018, p. 35). In a case study inquiry, multiple variables of interest and data points can be investigated. Lodico et al.

(2010) explained that the information collected can be obtained from multiple sources and from the individual(s) being studied. As mentioned, this case study took place in a local Chinese English DLBE program (Jianji School). A pre-observation questionnaire, class teaching observation, and post-class observation interview were conducted to answer the three research questions above. Multiple teachers were invited to this study to provide adequate data sources. I invited all the teachers who teach Chinese language arts in Jianji School's DLBE program to voluntarily participate in this study. Collecting multiple individuals' responses helped me to gain a holistic and deep understanding of how Chinese teachers teach critical thinking skills as well as what the factors are that influence their practice.

Recruitment of Participants

There are a total of ten teachers in the Jianji Chinese English DLBE program. These ten teachers include two English language arts teachers; four homeroom teachers who teach Chinese language arts, mathematics, science, social sciences, music, art, and physical education; one mathematics special teacher who works on adapting and refining mainland China's mathematics curriculum; one teacher who works on developing social science curriculum; and two teaching assistants. I sent out my invitation orally followed by a written invitation to the four homeroom teachers who teach Chinese language arts. An Information Sheet for Teachers (Appendix I) and the Consent Form (Appendix II) were also presented to teachers. The Information Sheet for Teachers states the procedures of this study. The teacher participant is expected to do the following: complete the pre-class observation questionnaires, select a day and time for the class observation, and attend the post-class observation interview. I observed and video recorded the class after

receiving the teachers' permission for the class in which they would like to be observed. The teachers selected a class time for the observation between May 1, 2021, and June 2, 2021.

Data Collection Tools

The teachers were asked to watch their own teaching video before the interview, and then were interviewed after watching it. The interview guide was used for the interview questions (Appendix IV).

I developed the questionnaires for both pre-interview questionnaires and interview guides to gather information about the teachers' views on critical thinking and how they plan to teach these skills (Table 3). When I created these questions, I looked at three published questionnaires: the Teachers' Beliefs About Literacy Questionnaire (Westwood, Knight, & Redden, 1997), the Chinese Language Teachers' Orientation on Reading Instruction Questionnaire (Lau, 2007), and the Foreign Language Education Questionnaire (Allen, 2002). My questionnaires were finalized after in-depth discussions with my dissertation advisor to ensure that these questions would allow me to collect rich and relevant data for the investigation.

The other two data collection tools, Teacher Questions Using Bloom's Taxonomy and Teachers Behaviors Keyed to Accountable Talk, were selected from a textbook entitled *SuperVision and Instructional Leadership* (Glickman, et al. 2004). These two data collection tools were used to collect class teaching observations that reflect to what extent the teacher teaches critical thinking skills in the classroom. All the data collection tools and the specific investigation purposes for each of the tools are listed in Table 3.

Table 3: *Data Collection Tools*

<p>Pre-interview questionnaire (Appendix III)</p>	<p>It will be designed to collect answers related to research question 1: “How do teachers teach critical thinking skills in Chinese immersion programs?” (Question 9)</p> <p>It will be used to collect data to answer research question 2: “What are the challenges teachers confront when teaching critical thinking skills in a Chinese immersion program?” (Questions 1-5, 8)</p> <p>It will be used to collect data to answer research question 3: “What are the supports offered to teachers that influence them to teach critical thinking skills in Chinese immersion programs?” (Questions 6-7, 10)</p>
<p>Teacher interview guide (Appendix IV)</p>	<p>It will be designed to collect more answers toward research question 1: “How do teachers teach critical thinking skills in Chinese immersion programs?” (Questions 1-3)</p> <p>It will be used to collect data to answer research question 2: “What are the challenges teachers confront when teaching critical thinking skills in a Chinese immersion program?” (Questions 4-6)</p> <p>It will be used to collect data to answer research question 3-1: “What are the supports offered to teachers that influence them to teach critical thinking skills in Chinese immersion programs?” and research question 3-2: “What are the instructional support that would influence the teaching practice?” (Questions 7-9)</p>
<p>“Teacher Questions Using Bloom’s Taxonomy” (Appendix V)</p>	<p>It will be used to assess how often a teacher poses a higher-level thinking question to enable student’s critical thinking skills practice</p>
<p>“Teachers Behaviors Keyed to Accountable Talk” (appendix VI)</p>	<p>It will be used to determine whether the teachers' practice enables students to practice critical thinking skills.</p>

Source: C.D. Glickman, S.P. Gordon, And J. Ross-Gordon, *SuperVision and Instructional Leadership: A developmental Approach* (6h ed.), Copyright 2004 by Allyn & Bacon.

Research Site: Jianji Chinese School

According to the school's published website information, Jianji Chinese School was established in 2010 with a mission to nurture strong bilingual critical thinkers. At Jianji School, across all programs, they believe that:

- An individual's happiness comes from the inner satisfaction of self-growth.
- Self-discipline is the most important habit for success.
- Learning only takes place when the learner is empowered to think, connect, and construct his or her own knowledge system.

This school offers seven distinguished programs serving students from preschool to high school. It has more than 300 students and over 30 teaching staff. At one of the school's open houses, Andy Tang, a current parent, shared, "I believe Jianji School is not just a great Chinese immersion program. It is simply a great school that happens to have Mandarin immersion" (Jianji School, 2020). The educational mission set forth for this program is to develop students' competency in both Chinese and English while having a focus on developing students' critical thinking skills.

Jianji School's Full-Day DLBE Program

Jianji School's full-day DLBE program's mission statement is stated on their website (2020):

Through bilingual education, our children not only learn more about the diverse languages and cultures of our world, but also learn about their own identities, ideas, and relationships. We strongly believe in the value of language learning as

a path to gaining self-understanding, developing empathy, and becoming a global citizen.

This full-day Chinese English bilingual program started in 2016 with one Kindergarten class. By the 2020 school year, this program had grown into four classes: one Kindergarten class with 11 students, one 1st grade with 14 students, one 2nd grade with 9 students, and one 3rd grade with 6 students. It plans to extend one grade level each year and complete the full range of K-5 grades full-day programs by in 2022. In the school year of 2020-2021, there are a total of ten teachers teaching in this program. These ten teachers include: two full time English language arts teachers; four full time homeroom teachers who teach Chinese language art, mathematics, science, social sciences, music, art, and physical education; one mathematics special teacher who works on adapting and refining of the mainland China's mathematics curriculum; one teacher who works on developing social science curriculum; and two teaching assistants. These teachers are all hired locally.

The curriculum is derived from the subject matter. The material used for Chinese instruction consists primarily of authentic texts for native Chinese speakers, which are imported from mainland China and refined by two specialist teachers. These two teachers edit the content and make it available for the teachers.

These instructional leadership practices have been implemented through the following methods:

1. Weekly individual teaching preparation meetings focus on the teaching plan for the following week and the concerns brought up by teachers, principal, or parents.

2. Critical peer group meetings are set up to allow teachers to team up with someone with whom they feel most comfortable, meeting on a regular basis to discuss and learn from each other.
3. Professional development seminars are held periodically to refresh, rethink, and reflect the teacher's understanding toward the school's educational philosophy.
4. Incentives are provided to teachers such as awards to encourage good teaching practice and mindfulness, such as "Best Science Teacher," "Wellness Challenge Games," etc.
5. A series of teacher workshops focuses on "developing critical thinking skills" occur each year.
6. All the new recruited teachers are required to study the articles related to critical thinking and Bloom's taxonomy.

Hybrid Teaching Model

During the pandemic, Jianji school has been offering a hybrid model of learning for its full-day K to 3rd Grade students. Students can choose to attend class in person or virtually. The teacher instructs both groups of students at the same time. This model started on October 5, 2020.

Participant's Background

All four-full time Chinese teachers who teach in the Jianji Chinese English Dual Immersion Program were invited to participate in this study. Three of them accepted the invitation. One teacher had a severe illness and could not participate in this study.

Ms. Amy, as she is addressed in this study, was in her late 30s when this study took place. She has been at Jianji school since 2015, almost six years. She taught for about half a year in a local private school prior to joining Jianji school. Ms. Amy worked as a teaching assistant for two years before promoted to be the lead teacher at Jianji school. She has two master's degrees, one in education and developmental psychology from University of Iowa and the other in education psychology from Hunan Normal University, China. In her own words, Jianji's education philosophy is believing in a student's inner drive and aiming to cultivate good learning habits that will eventually help students form a sound personality.

Ms. Bernice, as named in this study, was in her earlier 30s when this study took place. Ms. Bernice joined Jianji school in August 2014, right after she graduated from her master's program at the University of Southern California. She possesses an International Chinese Teacher Practice Certificate from USC, and a Foreign Chinese teacher certificate, Mandarin Chinese Proficiency Certificate, and a Chinese Teaching Certificate issued by the education registry in mainland China. She wrote on the teacher survey that Jianji's education philosophy is to encourage students to be positive, to be open-minded, and to be self-disciplined.

Ms. Cindy was in her late 30s when this study took place. Ms. Cindy obtained her first master's degree in applied psychology from Southwest University Chongqing, China, and her second master's degree in education from the University of Massachusetts, Boston. Ms. Cindy joined Jianji in 2014. In Ms. Cindy's own words, Jianji School's education philosophy is to cultivate love, develop students' ability in mutual assistance and cooperation, and develop introspection capabilities.

Ms. Amy, Ms. Bernice, and Ms. Cindy are responsible and reliable individuals. They are all held in high regard by the parents in the Jianji community.

Racist Attacks on Asian Americans

Since March 2020, when COVID-19 hit the United States, racist incidents against Asian Americans have surged. According to a preliminary analysis of official police data by the Center for the Study of Hate & Extremism at California State University, San Bernardino, while overall hate crimes dropped 6% in 2020, anti-Asian hate crimes surged 145% in the US. The first spike occurred in March and April of 2020, amidst a rise in COVID cases, due to negative stereotyping of Asians relating to the pandemic. Attacks against Asian Americans included physical assaults, vandalism, verbal harassment, and denial of access to services and public spaces. Reportedly, victims experienced being spat on, blocked from public transportation, discriminated against in workplaces, shunned, beaten, stabbed, and insulted as transmitters of the coronavirus. Since then, Asian-centric hate has continued. Asian American communities have mobilized to rally against such hate crimes. According to the daily news, more and more events have been organized by Asian American groups to protest the rise of anti-Asian crimes, advocate for racial equality, and voice their feelings and desires. (Center for the Study of Hate and Extremism2021). At the time of this study, racist attacks on Asian American were still prevalent.

Data Collection and Analysis

After the three teachers signed the consent form, their pre-interview questionnaires were filled out and collected in the month of April 2021. The classroom

teaching was recorded. The post-class observation interview took place as soon as the class teaching was completed. Three classroom teaching observations and three interviews were completed in the month of May 2021.

I used three types of data collection strategies with all participant teachers: (a) pre-interview questionnaire, (b) classroom teaching observations, and (c) interviews. After the teachers signed the consent form, I presented them with the pre-interview questions and asked them to select a 45-minute class for the teaching observation.

Observational data in the form of field notes and video recordings was organized to understand research questions about how Chinese teachers teach critical thinking skills in their classroom. Two additional observational tools were used to measure the teachers' classroom practices that encourage the development of the students' critical thinking skills. "Teacher Questions Using Bloom's Taxonomy" (Appendix V) was used to record how often a teacher poses a higher-level thinking question to encourage a student's critical thinking skills. "Teachers Behaviors Keyed to Accountable Talk" (Appendix VI) was also used to determine whether the teachers' practice enables students to practice critical thinking skills.

The Pre-interview Questionnaire (Appendix III) and Teacher Interview Guide (Appendix IV) aimed to answer the research questions: assessing the difficulties teachers face in the classroom when teaching critical thinking skills and determining the support teachers need to improve their practice. The participating teachers' responses toward the open-ended questions were analyzed to summarize their self-reflections on their acts of teaching and their thoughts about teaching critical thinking skills. The interview was

semi-structured, meaning it was organized around open-ended questions that allowed the interviewer the freedom to pursue spontaneous topics (Berg, 2004; Marshall & Rossman, 1995). It was based on Seidman's interview procedures, which seek to elicit a focused history, gather details on present experience, and ask questions that prompt an interviewee to reflect on the meaning of their experience (Seidman 2006). In order to elicit the richest possible information and ensure a comfortable speaking environment, the interview with the Chinese teacher was conducted in Mandarin Chinese. I included participating teachers' comments regarding their goals, strategies, and underlying assumptions aligned with what they did while teaching. These comments provided a better frame of reference when describing the individual teacher's understanding of teaching critical thinking skills as translated into their classroom practice.

Researcher's Position

Insider

I have been working as the principal in this Jianji Chinese Immersion School for ten years; therefore, I see myself as an insider (Asselin, 2003; Dwyer & Buckle, 2009; Kanuha, 2000) in this context. This insider's perspective provides me with a deeper understanding of the research context. I understand that parents choose to attend this school because this school clearly states that its mission is to cultivate bilingualism and critical thinking. I have ample opportunities to chat with students and teachers formally and informally and this interaction helps me to gain a great deal of understanding of teachers' feelings, struggles, and expectations.

Supervisor

Because of my role in this study's school, I interact with the teachers, students, and parents on a daily basis. I can clearly see how my presence affects those around me. For example, the teacher may become more aware of someone observing their teaching skills, and the students may become more aware that the principal is seeing if they are well-behaved. I further recognize that verbal and nonverbal communication can impact others' actions too. I am very aware that my role in this school may impact classroom dynamics, for both the teachers and students.

Bias

As Irvine and Gal (2000) claim, "there is no 'view from nowhere,' no gaze that is not positioned," meaning that avoiding bias is not possible. My own perspectives shape my data generation and analysis. My nationality, educational experience, language background, and my position as a doctoral student at the University of San Francisco influence how I interact with the Chinese teachers, students, and parents, as well as how I understand the classroom interaction and discourses. I am aware that my educational philosophy and worldview may bias me in this study.

Ethical Considerations

Participant's Permission for Teachers

I invited all the teachers who teach Chinese language arts in this program to participate in this study. These teachers have been working under my supervision for at least one school year and directly report to me for their teaching responsibilities. We meet on a weekly basis for teaching preparation, student issues, and parent concerns and feedback, as well as other school-related work. The familiarity the teachers and I have

may help them feel more comfortable accepting my invitation to be involved in this study. However, I am aware that my role has been viewed as an expert in teaching and that perspective could affect performance. Furthermore, my role in evaluating their professional skills may prevent me from receiving unbiased responses from this study.

I am aware that I may have a bias towards teachers' teaching methods while observing their classes. I understand in the process of producing the thesis, my theoretical background will guide my writing as well. But as a researcher, I keep reminding myself that I need to report what I have seen, heard, and record honestly, without my personal judgment.

I believe that sharing a common ground with participants not only helps me better understand this context, but also "provides a level of trust and openness" with my participants (Dwyer and Buckle, 2009, p.58). In order to make sure the teachers understand this common ground, I made it clear that they are free to withdraw at any point before the end of the fieldwork. If withdrawal happens, I will respect their choice and delete the data from the dataset. The actions conducted in this study will not be related to their appraisal at this school.

Anonymity

I maintain anonymity with the teachers and all names (both the school site and the participants) included in my study will be anonymized. In addition, I make sure that there is no identifiable information in this thesis or any further published documents. In terms of confidentiality, I replace participants' names with pseudonyms.

CHAPTER IV: FINDINGS

In this chapter, I present the data collected from classroom observations, teacher surveys and interviews. My data from the classroom observations shows how three teachers developed in critical thinking skills for students at Jianji. These classroom observations focus on the teachers' use of meaningful talk and high-level thinking questions. "Teacher Questions Using Bloom's Taxonomy¹" (Appendix V) was used to record the number and quality of questions posed during this class. "Teachers Behaviors Keyed to Accountable Talk" (Appendix VI) was also used to determine whether the teachers' practices enabled students to practice critical thinking skills. My data from teacher Pre-interview Questionnaire (Appendix III) shows how well these three teachers assessed their critical thinking teaching skills, what of the instructional support they received is useful for them to teach critical thinking skills, and how the principal's leadership skills may have helped them to teach critical thinking skills. My data from teacher interview shows these three teachers' views on critical thinking, the challenges they face, and more information and samples of what the instructional support is needed that would influence their practice in teaching critical thinking skills in the Chinese immersion program. The Pre-interview and Teacher Interview Guide (Appendix IV) was used to collect the data.

I have been working with the participating teachers for at least five and half years as their principal and their instructional mentor. I have shared with them that I was a doctoral program student and I am very keen to find the best way to teach Chinese in the U.S. I communicated frequently to each of my teachers that the main reason I keep working day after day is my inner satisfaction from self-growth. I shared with them that I

learned a lot from observing their teaching and planning their class learning activities. I want my teachers to feel supported rather than pressured from the interaction I have with them. I feel teachers understand me and have worked tirelessly to improve their teaching effectiveness. While I am conducting this research, I am extremely aware that my role as principal and mentor may affect the data collected. Therefore, I explained very clearly to my teachers that whether or not to accept this study is completely voluntary. I asked them to give me their answer freely. All the data collected will only be used to for this study and will not be considered for anything else. After my explanation, four of them gladly accepted the invitation and expressed their intention to help me complete this study. However, one teacher got very sick and had to withdraw at the very beginning. In order to allow my teachers to speak freely during interviews, I consistently remind myself that to listen only, not to adjust or to influence. At the beginning of each interview, I started by stating that I am now a doctoral student here to collect data for my study. I asked them to speak freely as all the data collected will only be used for this study. I offered to share the data with them individually if they were interested. I smiled during the entire interview process and posed my questions followed by the teacher's response. At times when I was not sure I understood the teachers' meaning, I would paraphrase the question to get clarification from them to make sure the data collected is self-reported.

The data collection process went smoothly. Through observing participating teachers' teaching actions, studying teacher survey answers, and receiving further explanation from teacher interviews, I collected rich data of how the teachers develop students' critical thinking skills in Jianji Chinese immersion program, what challenges they have, and what instructional support is needed for teachers to teach critical thinking

skills in a Chinese immersion program. I will first present the findings from each participating teacher and organize my findings to address the research questions at the second half of this chapter.

Ms. Amy

Ms. Amy's 30-minute class teaching session was recorded on May 4, 2021. The observed class was a lesson talking about the structure of the rainforest. This was a Kindergarten class with 10 students total. Ms. Amy first reviewed the learned knowledge from the previous day and then introduced the new vocabulary. At the end, she taught students the structure of new characters. Ms. Amy was very enthusiastic when she was teaching. The class went smoothly, most of the students demonstrated great interest toward the learning topic and were actively following the questions and answering along. From time to time, when there were students who lost attention, Ms. Amy was able to apply several techniques to regain students' attention. The techniques she used were changing her voice volume, exaggerating her facial expressions, moving toward a student who was losing attention, and quietly reminding a student by tapping on his/her table.

During the class instructional process, Ms. Amy moved around her classroom. She was able to engage students in talk by providing opportunities for students to speak about content knowledge, concepts, and issues. The entire class time was very interactive. Ms. Amy posed many questions to draw students into the learning process. She praised students who stayed focused and remembered to raise hands when they heard the questions, which helped to uphold the high learning energy among the students. Ms. Amy listened and observed carefully to every student's response and their expressions. Often, when students provided incorrect answers, Ms. Amy would repeat the student's wrong

answer by exaggerating the wrong information to signal the wrong answer as well as to get the student's attention.

Ms. Amy asked 40 questions during her 30 minutes of group instruction time. Among these 40 questions, 25 of them were questions relying on the memory of previously learned materials. These 25 questions accounted for 62.5% of all questions. These questions were asked to review the learned facts of the rainforest. They included questions such as: What you would see in the top layer of the rainforest and what are the animals living in the lowest layer of the rainforest? Who remembers the name of the place we studied yesterday? How do you say that in English/Chinese? Who remembers the name of those three layers in a rainforest? Does this layer have XXX? Can you see XXX in this layer? Does this character look like a house? There were 8 questions that requested students to demonstrate their understanding. These 8 questions account for 20% of the total questions (Table 4).

After reviewing the knowledge about the rainforest, Ms. Amy started to teach new characters as they appeared in the text she gave to students. Ms. Amy asked her students to apply character recognition skill when she taught the new characters five times, using questions such as: Will you let me see if you know how to write this character? Can you show me how to write the correct stroke of this character? These 5 questions account for 12.5% of the total questions asked. There were 2 questions that invited students to use higher level thinking skills. These two questions were: How would you help yourself to remember this character? What were the differences you discovered by looking at these two characters? These two questions account for 5% of the total questions asked.

Table 4

Ms. Amy – How often she asked the high-level thinking questions

Question Category	Tally 5min	Tally 10min	Tally 15min	Total	Percent
Creating			2	2	5%
Evaluating					0%
Analyzing					0%
Applying		5		5	12.5%
Understanding	5	3		8	20%
Remembering	3	17	5	25	62.5%

Ms. Amy provided clear expectations for how talks should occur and what the rest of students should be doing when one was answering questions. However, Ms. Amy was dominating the entire talk. She posed questions and prompted for the correct answers. I did not observe evidence that Ms. Amy was interested in what students may be thinking, but rather was only on looking for correct answers from students. Ms. Amy did not show any intention to allow students to clarify or explain their responses. The entire class was led by the teacher and there was no peer interaction or group discussion during this class. Students were not given opportunities to question or provide personal opinions.

In her self-evaluation (Table 5) Ms. Amy stated that she does consider students' interests and the current subject knowledge skill level when she plans her teaching. Ms. Amy was not sure if she makes certain that all students develop a deep understanding of key declarative (i.e., facts, concepts, generalizations, and principles) and procedural (i.e., skills, processes, and procedures) knowledge by emphasizing higher-order questioning. She also knew that in her class she was not able to avoid "yes" and "no" questions and questions that "contain the answer." Ms. Amy was confident that she used the wait time effectively to engage her students in the learning process.

I was surprised that Ms. Amy thought she was encouraging discussion in her classroom by using open-ended questions. She knew the purposes of her questions and chose important--rather than trivial--material to emphasize students' in-depth exploration of essential/key questions. In the survey, Ms. Amy also marked "yes" on the teaching action of "probe" questions designed to encourage students to elaborate and support assertions and claims. She indicated that she could

Table 5*Ms. Amy – Self-Evaluation*

Action item	Amy
Do I make certain that all students develop a deep understanding of key declarative (i.e., facts, concepts, generalizations, and principles) and procedural (i.e., skills, processes, and procedures) knowledge by emphasizing higher-order questioning?	n
Do I encourage discussion in my classroom by using open-ended questions?	y
Do I decide on the goals or purposes of my questions?	y
Do I choose important--rather than trivial--material to emphasize students' in-depth exploration of essential/key questions?	y
Do I avoid "yes" and "no" questions?	n
Do I use "probe" questions to encourage students to elaborate and support assertions and claims?	y
Do I avoid questions that "contain the answer"?	y
Do I anticipate students' responses to my questions, yet allow for divergent thinking and original responses?	n
Do I use purposeful strategies for helping students deal with incorrect responses?	y
Do I make effective use of Wait Time I and II?	y

anticipate students' responses to her questions, yet allow for divergent thinking and original responses, and could use

purposeful strategies for helping students deal with incorrect responses. However, these actions were not evidenced from her observed class.

Chinese language was the only language used during the entire class time in Ms. Amy's class. Students were given ample opportunity to listen to Chinese and practice saying sentence patterns and target vocabularies during the group instructional time. As a result, the guided individual worksheet practice went smoothly. Most of students were able to complete the assigned self-practice worksheet. that only requires student's short term memory of the knowledge learned from the group instruction time. This class was focused on delivering knowledge and only posed two high-thinking questions to teach student's critical thinking skills. Furthermore, these two high thinking questions were not given adequate discussion time to allow the development of critical thinking skills .

Ms. Amy confirmed that her teaching practices have changed since she taught in Jianji Chinese Immersion School. Ms. Amy selected three practices that were helpful for her teaching. Among these three practices, weekly teaching preparation with principal was the most useful one, and then the knowledge gained from the professional development seminar. The last one was observing peer's teaching and being observed by her colleagues and receiving feedback. She mentioned that the support from the weekly preparation meeting with principal was very useful because lot of her confusion was addressed during the meeting. For example, she can get clear confirmation from her principal to successfully guide her when she doesn't know which way is a better choice of teaching or when she is not able to decide if a certain set of materials would assist her

student's learning. She also received lot of sympathy from talking to the principal about her concerns, especially when she felt stressed. She mentioned that after meeting, she often would feel less stressed and somewhat relieved. She also felt much stronger mentally when she knew that her thinking was in sync with school's beliefs.

Ms. Amy felt that the principal can always think very clearly and logically, show high sensitivity and concern for others' needs and feelings, foster high levels of participation and involvement in decisions, and is consistently helpful and responsive to others. However, she felt that sometimes the logic the principal uses to approach problems and the care taken in planning and the timeline were not consistent. Also, the principal's ability to inspire others is somewhat strong. The result of the investigation on the principal's leadership is 29 out of 35 from Ms. Amy.

The interview with Ms. Amy took place on May 10, 2021, from 8:34 p.m. to 9:23 p.m. Ms. Amy was satisfied that the class went close to her plan. she responded in the interview:

I don't think they deviate that much, though the minutes for each part of the lesson may not be as tight as in the plan because students' responses dictate how the class goes. Some of them are at a higher level so they can speak more, but I still finish all the activities that I planned out, more or less. There aren't large deviations. (3:36-4:02).

When Ms. Amy was asked if there was any part of the lesson that went well and why, she was very excited to share a *sneak a peek* game that she played with her students during the character writing activity. Memorizing characters is the hardest part of learning Chinese and students often feel bored. Ms. Amy shared

that this game didn't pressure students to learn the stroke orders or the writing system; rather, it shifted students' attention from rote memorization to subconscious practicing. It was a race game: Ms. Amy turned her face to the whiteboard away from her students and said, "I haven't taught you how to write this character yet. I bet you all don't know how to write about it." (4:39) By the time she turned back to her students, all of them were holding up a small whiteboard with their own practiced character on it. Ms. Amy concluded (6:06):

Fortunately, the students are go-getters and take the initiative to join activities. They think they're just playing games instead of learning and also feel as if the learning process is really lax. In actuality, they practice more than what I expect them to practice in a very intense atmosphere so their attention is all focused on the task at hand.

Ms. Amy didn't answer the questions of whether there was any part of the lesson that didn't go well as she planned.

When Ms. Amy was asked what critical thinking is and what the challenges are that she confronts when teaching critical thinking skills, she stated in her interview that (16:38):

Critical thinking skills are the skills that relate to one's attitude when facing a situation or problem and not accepting everything about it. People with these skills can look at circumstances from multiple angles or different ways of thinking and also figure out how to solve the problem.

Ms. Amy felt that it is hard to teach Kindergarten students critical thinking skills for two main reasons. One is that her students are so young and adults in their lives have a fixed expectation of them so they do not form their own solutions or opinions. The second reason is that students at this age rely on what they have been taught and what they are used to in order to approach a problem. Therefore, it is hard for her as a teacher to see if a student is learning to develop critical thinking skills. As Ms. Amy stated (20:30):

It may appear to be that they have critical thinking skills, but I think it's hard to say that it was their own idea or from someone else.

As the interview went on, Ms. Amy suddenly mentioned that the interview conversation would be more productive if she knew the definition of critical thinking skills and had a rubric of how to evaluate student's critical thinking skills development. She stated (35:10):

It's hard to evaluate how effective this is, though it isn't hard to develop. If you have clear objectives, it's easy to distinguish what the students can and can't do. It will be clear to see if you can build up these kinds of skills. However, if you just give a sweeping overview of what critical thinking skills are, how will you develop any of these skills? The concept will be unclear.

However, Ms. Amy believed critical thinking skills could be developed by having deeper conversations with older students. She pointed out that the conversation can be the kind that have no definite answer, like societal issues. She mentioned that this type of discussion promotes critical thinking skills. But this practice is only good with older children. The example she gave is that when she asked open-ended questions, she didn't

give students too many answers. In Ms. Amy's view, teaching critical thinking skills in Kindergarten means don't limit a student's thinking. In her Kindergarten class, she often tells her students not to only listen to the teacher. She didn't want her students' thinking is limited by her.

In terms of how she would like to be supported in teaching critical thinking skills, Ms. Amy mentioned that she would like to receive more information on the topic and suggested that the school hold more professional development opportunities where the teachers can share best practice and learn from each other.

Ms. Bernice

Ms. Bernice's 30-minute class was recorded on May 5, 2021. This was a first grade Chinese language class. The objectives set forth for this class were: to deepen students' understanding toward new learned vocabulary from yesterday's learning text, and to use quotation marks correctly. Ms. Bernice was calm and enthusiastic while she was teaching. Her class was filled with excitement from each of her students. Each of students engaged in the learning process and appeared encouraged to learn. Class teaching started with whole class instruction, then moved to peer discussion, then to whole class discussion, then to group work, and then a brief gathering, after which the students were instructed to work on individual practice.

Ms. Bernice was able to engage students in discussion by providing opportunities to speak about content knowledge, concepts, and issues (Table 6). Each question she asked had adequate discussion and answer time. Each response from students had the teacher's clear feedback. Ms. Bernice listened carefully and allowed silence to occur

Table 6

Ms. Bernice – How often the high-level thinking questions was asked.

Question Category	Tally 5min	Tally 10min	Tally 15min	Total	Percent
Creating			5	5	.19
Evaluating				0	0
Analyzing				0	0
Applying	2	10		12	.46
Understanding	2	1		3	.11
Remembering	1		5	6	.23

during wait time, which gave space for students to think before reacting. When Ms. Bernice heard a somewhat unclear response, she was able to provide opportunities for self-reflection. She taught her students to use certain sentences to start their response, such as 我听到你说的句子是..., 我觉得你的这个句子是个..., 我这么说是因为... (What I heard was..., I think your answer was ..., and my reason for my comment was...).

Ms. Bernice did an excellent job assisting her students to listen carefully to each other by creating space that promoted discussion. One example was when she asked her students to exchange an answer with their elbow partner. She started the activity by requiring her students to listen to their elbow partner and wait for their turn to talk. She taught her students to check if their partner finished talking by asking “你说完了吗？”

(are you finished?). She asked her students to look at the one who is talking as that would help them to listen better. She asked all of her students to not only look at the teacher when she was speaking, but also to turn and look at the student who was responding or sharing the ideas during the whole class discussion. Ms. Bernice was able to assist her students to elaborate and build on another's idea by facilitating the group discussion rather than dominating the talk. She invited her students to comment on other students' answers and praised students who were actively listening to others.

Ms. Bernice would conclude the discussion and would then ask the whole class to learn the final answer; that is, the best answer created by this class. She said, 你们都很认真听也说的很好, 现在我们所有的人都来把对的说两次 (You have paid attention

his/her answer and your feedback to his/her answer was so wonderful. Now, class, let us all repeat the correct sentence twice together!)

Ms. Bernice asked 26 questions total in her class. Among these 26 questions, 6 requested students to exhibit memory of previously learned knowledge. For example, students might be asked to read aloud the learned vocabularies, make sentences and read the text aloud, and restate the summary of the main idea of the text that they learned yesterday. These 6 questions account for 23% of the total questions asked during the observed teaching time. There were 3 questions Ms. Bernice asked students to show her their understanding of how to use the quotation marks., such as, “Which punctuation should we use in here?” These 3 questions account for 11% of total questions asked in this class. There were 12 questions that required students to apply their pinyin knowledge such as adding pinyin to the new learned words and checking if the answers were correct. These 12 questions account for 46% of the total questions asked. Ms. Bernice asked 5 questions that required high-level thinking skills during her class. These questions required students to create new sentences by using the new learned words and share their sentences. Ms. Bernice also asked students to evaluate those sentences by commenting if they agree that was a good sentence and providing their reasons for such comment. This type of question requires student practice high-level thinking skills to present and defend their opinions by making judgments about information. These 5 questions account for 19% of the total questions asked.

Students in Ms. Bernice’s class were actively engaged into the Chinese language learning by connecting and constructing the new language skills with their previous one. Students were provided opportunities to reflect and present and receive feedback

and consolidate new knowledge. Making sentences by using the new words is a common Chinese learning activity, many Chinese teachers used this exercise to examine if their students know the meaning and syntactic usage of the new words. Ms. Bernice first asked her students to make their own sentence and share that sentence within the group. She asked her students to listen to the sentence and then comment if that sentence is considered a good sentence and why you think it is a good one. The sentence making activity generated each student's involvement. Each student was listening, speaking, and writing eagerly in this activity. They were engaged in organizing their thoughts of how to present my knowledge toward what is considered a good sentence. Individual student's understanding became the scaffolding for other's learning. In her class, each student's mind was opened to accept other's ideas and new knowledge.

Regardless of where each of student's current Chinese skill level was, they all seemed comfortable to present their own opinions and took the opportunity to practice using Chinese to express their own thoughts. In Ms. Bernice's class, students practiced Chinese, increased Chinese ability, and moreover, they were developing their critical thinking skills and Chinese was becoming a live language.

In the teacher's self-evaluation survey (Table 7), Ms. Bernice stated that when she plans her class she would consider student interest, learning ability, and how she can make opportunities for students to be proud of themselves. Ms. Bernice felt she was able to make certain that all her students develop a deep understanding of knowledge by emphasizing higher-order questioning. For example, one of the teaching objectives is for students to correctly use quotation marks. Ms. Bernice had students apply the punctuation

Table 7*Ms. Bernice: Self-Evaluation*

Action item	Ms. Bernice
Do I make certain that all students develop a deep understanding of key declarative (i.e., facts, concepts, generalizations, and principles) and procedural (i.e., skills, processes, and procedures) knowledge by emphasizing higher-order questioning?	y
Do I encourage discussion in my classroom by using open-ended questions?	y
Do I decide on the goals or purposes of my questions?	y
Do I choose important--rather than trivial--material to emphasize students' in-depth exploration of essential/key questions?	y
Do I avoid "yes" and "no" questions?	n
Do I use "probe" questions to encourage students to elaborate and support assertions and claims?	y
Do I avoid questions that "contain the answer"?	y
Do I anticipate students' responses to my questions, yet allow for divergent thinking and original responses?	y
Do I use purposeful strategies for helping students deal with incorrect responses?	y
Do I make effective use of Wait Time I and II?	y

and asked them, “Why was that and not this,” questions to allow her students to articulate their understanding about question marks and their usage.

Ms. Bernice organized her class in various learning settings to prompt elaboration and active in-depth discussion among the students. Students had whole class instruction, peer discussion, group discussion, and individual practice time. Various formats of learning successfully generated divergent thinking and provided opportunity for students to deal with responses that were different from their own answers. All of the actions that develop critical thinking were observed during Ms. Bernice’s class observation, although it appeared that some activities may benefit students more if they are given more time to explore.

I was surprised that Ms. Bernice felt that she could not avoid "yes" and "no" questions in her class. She felt this is a quick way to get a quick response from her students at once. She questioned whether avoiding "yes" and "no" questions is a good practice, or whether it should be a component of teaching.

Ms. Bernice stated in the interview that she felt her teaching practice was formed and developed through the year that she had taught at Jianji school. “Many of my vague thoughts toward education became much clearer these days.” (Interview with Ms. Bernice 03:05) Ms. Bernice indicated that the weekly teaching preparation with the principal is the most useful for her teaching and that the second one is observing her colleagues’ teaching and providing her feedback. Ms. Bernice has become more and more skillful in teaching since she joined Jianji.

Ms. Bernice gave 4 skills full score (always) and gave 3 skills 4 points (often). The 3 skills that didn’t score fully were: think very clearly and logically, approach

problems with facts and logic, and strongly emphasize careful planning and clear timelines. The total score for this section is 32 out of 35.

Ms. Bernice's interview took place on May 19, 2021, from 8:48 p.m. to 9:32 p.m. When Ms. Bernice was asked what parts of her teaching she thought went well, she answered that the successful parts of her class were when the students feel that they have participated and very clearly know what the objective of the lesson is. She was proud that all her students were able to practice fully when she was walking around the classroom listening to each of them talk. She is then sure that everyone is thinking hard about the task and is prepared instead of her simply calling on people who raise their hands.

She told me that when she is planning, she focuses on how she can connect the knowledge with students' skill development. She explained that she spends a lot of time to think of ways to make this connection. By doing so, her students can clearly see why they need to learn and what are the expected learning outcomes.

The second thing that Ms. Bernice felt successful about her teaching was that she taught her students to learn from each other. The expectation of class participation was that students would listen to other students' responses, and comment on those responses, and then learn from that conversation. She felt this type of instruction not only enhances a student's active learning but also provides great joy and a sense of pride for her students. The example she gave was a sentence making activity. She asked students to use learned words to make sentences, and through class discussion, students helped each other to extend that original sentence into a longer and more sophisticated sentence by adding other new words. As she replied (5:05):

Someone can say a sentence out loud for others to hear and discuss and then write down, which can let that student have a sense of accomplishment and participation.

When Ms. Bernice was asked for her thoughts about what aspects of her class can be improved, she mentioned that there were parts of her instruction where she was not sure about students' reaction. She stated that she could not get a solid understanding of whether her students are actively learning or just passively memorizing, or perhaps even pretending they were practicing during their read-aloud time. She felt that she could provide more timely correction or feedback to make sure that students were appropriately engaged in their work.

Ms. Bernice believed critical thinking is important for everyone because people look at situations differently and we need to understand that people have their own viewpoints. Hearing new ideas or speaking about one's own with others is part of the learning process.

I asked Ms. Bernice to share good examples of her teaching critical thinking skills in her class, and she answered that she purposely redesigned her free writing workshop to allow her students to understand that the teacher is not the source of correct answers. Instead, students need to learn the skills of self-correction and develop habits of sharing their own opinion and understanding other's ideas. In the interview record related to teaching free writing, Ms. Bernice related:

I'll put up prompts at the beginning of class when I give oral instruction. For instance, there would be two or three questions that the students need to answer, and then we'll share our answers together and combine them into a sentence. I'll

write down answers on the whiteboard to serve as a first draft, intentionally making mistakes that the students themselves make while I copy down the words. After modeling the sentences and the errors, I'll turn around and ask them, "What do I do now?" They'll answer by saying we need to read and do more research, which is a habit I've been drilling into them. Once I'm finished, we'll look up these words together and point out what the errors are, where they are, how to fix them, and why they need to be fixed this way. (19:10)

Why do these techniques help critical thinking skills development?

It's because normally students would have accepted whatever the teacher says or writes. If you're not thinking critically, you'll believe that the teacher's words are always correct. I'll intentionally make errors to test the students' thinking skills. I want to see if the knowledge students have gained is good enough to allow them to distinguish what's true or false instead of believing everything the teacher or someone else tells them. Students need to have proper judgment in instances like these. I often reminded my students of the following questions: Are you able to use what you've learned? Does what you've seen together allow you to make a judgment call? (21:20)

Ms. Bernice further mentioned that teacher and student interactions are important to teach critical thinking skills. She would provide a lot of opportunity for students to create, to express, and to act out what they were thinking. She barely gave her ideas to her students because she believed if students only listen to her ideas, students'

performance will only be based on what she just said and the corrections she made for them.

In her class, Ms. Bernice often pairs up student into groups so that they can act out their ideas together and share different viewpoints with each other. Students often get inspiration by watching their partners perform, then in turn draw upon their own experiences to inspire others. It's important for students to hear what people from outside their social circles tell them. Even though Ms. Bernice ended up spending most of the time in class guiding the students, she felt that she believed it is worth it to give students chances to let their voices be heard.

When Ms. Bernice was asked if there is anything she learned from the professional development or interaction between college/ principal that she found helpful in designing this lesson, she could not help but laugh out loud and said, "The direct answer for this question is that these teaching methods were all taught by you. You asked me to ask open-ended questions; you asked me to group students so that they can learn more thoroughly." (3:30)

At the end of the interview, Ms. Bernice expressed her concerns about not having enough time to allow each of her students to elaborate his/her thoughts. She stated that from time to time, she was concerned how to balance the critical thinking skills development versus completing the teaching objectives. She raised a question of whether the school could look at the class schedule and work with her to find a good balanced schedule to teach content as well as the critical thinking skills.

Ms. Cindy

Ms. Cindy's 30-minute class teaching was recorded on May 4, 2021. This is a third grade Chinese language class. Ms. Cindy was teaching a reading comprehension session with her students in the observed class. The skill set forth in this class session was to understand two different ways of describing an observation.

There were 7 students in this 3rd grade class. During the entire class time, they were asked to sit in their own spots facing the whiteboard and respond to Ms. Cindy.. Peer work or smaller group work was not observed. Ms. Cindy presented a very teacher-centered approach in this language class. She stood in front of the whiteboard the entire class time and she barely moved herself from where she stood. Ms. Cindy's voice was loud and clear. As class approached the end, her speech sped up dramatically. Her facial expression was serious and concerned.

During this class, Ms. Cindy provided opportunities for students to speak about the content knowledge. Ms. Cindy listened carefully to students' responses and provided her correction immediately, followed by a yes or no question to check if everyone understood. She didn't engage students in talk by waiting or allow silence for thinking to take place. Many times, she answered her own questions.

Though Ms. Cindy required students to keep quiet while another student was talking, she didn't create space to promote discussion, didn't provide or reinforce how discussion should occur. Ms. Cindy also didn't take time to review a student's response or give opportunities for students to clarify or expand their comments; instead, she jumped into giving answers to her own questions most of time. There was no evidence from that recorded class that students were given opportunities to elaborate and build on

other ideas. It seemed Ms. Cindy was in a hurry to finish her teaching plan. Students were instructed to copy down the correct answer or self-drill in memorizing Chinese words during the group instruction time. I couldn't tell if her students were able to stay up with her speed and learn the knowledge that she planned to teach during the instructional time. By Ms. Cindy's own reflection, she realized she set too fast a pace for this class when she saw that none of her students were able to complete the guided individual practice. She felt she needed to re-teach this class session.

Ms. Cindy asked a total of 53 questions in her class (Table 8). Among these 53 questions, 21 questions required students to exhibit memory of the sounds of previously learned words. These 21 questions account for 39.6% of the total questions she asked during the group instruction time. There were another 21 questions that required students to demonstrate their understanding of the meaning of the previously learned vocabularies. These included questions like, "Can you tell me what the meaning is of this word?" Often, she answered her own questions as students' answers did not satisfy her. I observed that at the end of her own answer or explanation, she asked the class, "Do you guys remember it now?" These 21 questions account for 39.6% of the total questions asked in this class. There were 9 questions that required students to apply acquired knowledge. Ms. Cindy asked her students to use words to make sentences. Ms. Cindy orally corrected students' responses and moved to the next words. These 9 questions account for 16.9% of total questions asked. Ms. Cindy asked 2 questions that required students to analyze the information and to make inferences and find evidence to support

Table 8

Ms. Cindy – How often the high-level thinking question was asked.

Question Category	Tally 5min	Tally 10min	Tally 15min	Total	Percent
Creating				0	0
Evaluating				0	0
Analyzing	2			2	.04
Applying		3	6	9	.169
Understanding			21	21	.396
Remembering		14	7	21	.396

generalizations. One of these questions was: 你们觉得作者是从哪两个方面来描写？ (In your opinion, please state from which two aspects does the author describe the scene?) The other question was directed toward a student who had not turned in homework and Ms. Cindy asked him: 你要怎么做才不会犯同样的错？ (What do you think you need to do to not make the same mistake in the future?) With these two high-level thinking questions, Ms. Cindy answered one question related to the learning text and left the other question—how a student can better prepared for the class—un-addressed.

Students seemed confused with the questions and her answers, but Ms. Cindy continued her class without further explanation. These 2 questions account for 4% of the total questions asked.

Ms. Cindy stated that she considers students' interest and ability when she plans her class. Her self-assessment in the survey (Table 9) was completely opposite from the action observed in Ms. Cindy's teaching demo. Although Ms. Cindy confirmed she understands the actions that lead to teaching critical thinking skills and believes she has implemented them in her class, I did not observe that reflected in the class session. In the observed class, Ms. Cindy was attempting to drive knowledge to her students by forcing them to memorize the concepts of "static description" and "dynamic description."

Question after question was asked, but those questions did not connect with students nor lead to their comprehension of the content that Ms. Cindy was aiming to teach. I did not observe evidence that Ms. Cindy wanted her students to be involved in the discussion. It seemed that Ms. Cindy had a lot of information she wanted her students to remember. Ms. Cindy often answered her own questions. After her own answer, she

Table 9*Ms. Cindy – Self-Evaluation*

Action item	Ms. Cindy
Do I make certain that all students develop a deep understanding of key declarative (i.e., facts, concepts, generalizations, and principles) and procedural (i.e., skills, processes, and procedures) knowledge by emphasizing higher-order questioning?	y
Do I encourage discussion in my classroom by using open-ended questions?	y
Do I decide on the goals or purposes of my questions?	y
Do I choose important--rather than trivial--material to emphasize students' in-depth exploration of essential/key questions?	y
Do I avoid "yes" and "no" questions?	sometimes
Do I use "probe" questions to encourage students to elaborate and support assertions and claims?	y
Do I avoid questions that "contain the answer"?	sometimes
Do I anticipate students' responses to my questions, yet allow for divergent thinking and original responses?	y
Do I use purposeful strategies for helping students deal with incorrect responses?	y
Do I make effective use of Wait Time I and II?	y

asked if students if they understood, and her students responded “yes” with puzzled faces. However, Ms. Cindy didn’t seem to read the hesitance and puzzlement her students showed and continued her pace of teaching for the entire class.

Ms. Cindy’s teaching practices have changed since she taught in Jianji Chinese Immersion School. Her greatest improvements were in her classroom management skills and her understanding of the grade level student learning outcome. Ms. Cindy’s self-reflection also echoed this change:

In the past, I was not as strict with my standards for listening, speaking, reading, and writing. My expectations for their behavior weren’t as intense. Now I discipline them more and have much higher standards. I’ll correct them immediately now, not just for academic problems, but also behavioral problems. I believe that during their developmental period, if I don’t correct them quickly then there will be problems down the line. (24:30) Ms. Cindy stated that weekly teaching preparation with the principal was the most useful for her teaching. The second useful way was peer discussion meetings with her critical peer. Ms. Cindy commented that in order to increase teaching skills, a teacher needs to find time to reflect on their own teaching. Meeting with a critical peer to observe each other’s teaching and provide comments helped her greatly in improving her teaching skills. However, she also mentioned that it was time-consuming for her to meet with her critical peers.

Ms. Cindy marked full score in all the questionnaires in the evaluation of the principal’s leadership, 35 out of 35 points.

Ms. Cindy’s interview took place on May 18, 2021, from 4:48 p.m. to 5:25 p.m. At the beginning of the interview, Ms. Cindy said she had almost forgotten all the details for the

class that was observed. She asked for a moment to think before we continued the interview. After a few minutes thinking, Ms. Cindy started to reflect by sharing what went well in her class. She felt the section of reviewing words' meanings and writing went reasonably well because all the students were actively participating in copying words into their notebooks and practiced as much as possible within the given time to prepare their dictation.

Ms. Cindy went on to say that she didn't introduce "static description" and "dynamic description" well and she felt that she needed to re-teach. She mentioned what she did:

Basically, all I did was tell them what static and dynamic descriptions were in their homework, but I didn't check to see if they could give examples of those on their own. I didn't ask them to provide example sentences when talking to me and point out whether or not that was in static or dynamic description.(02:21)

She went on to say:

Perhaps I talked more than they did and they just pointed out what kind of descriptions my sentences were in. I ought to let them figure out this themselves. For example, I could ask them to give me a sentence that uses dynamic description, which can allow their brains to turn more and engage in critical thinking. To start things off, they will construct a sentence and then contemplate what verbs they must use to turn it into a sentence with dynamic description, instead of listening to me create a sentence and telling me what type of description it is. (1:30)

I then asked what do you think is the reason of having this unsatisfactory lesson?

Ms. Cindy replied:

It might be because students just want to finish the daily tasks as quickly as possible. After thinking about it, if I have to teach this class again, I will thoroughly explain it to them during class instead of getting them to write down things over and over again when it's time to do the homework. The second strategy of writing down examples only for their work would make it hard to understand and remember the concepts and leave them with a shallow understanding. (5:00)

When Ms. Cindy was asked to explain critical thinking skills, she shared that critical thinking means one is able to assess if something is right or wrong. Critical thinking skills also can point out what the problem is even when one is still unable to express the problem clearly. Ms. Cindy stated that her understanding of teaching critical thinking skills meant as a teacher she needs to tell her students to question if their teacher is truly correct. She shared she often asked her students to point out her mistakes and admitted that she was not always correct. When her students pointed out her mistakes, she would immediately admit that and say, "Sorry that was my mistake." She encouraged her students to look together to discover each other's comments and find the solution together.

Ms. Cindy mentioned that it was difficult to teach critical thinking skills in her class. She said:

Yes, it's quite difficult. Being able to analyze or express themselves is a challenge for the students. They should have analytical skills, but it's not enough at the moment because they can only see the superficial aspects of things. They may be able to understand one thing but have trouble saying it. (17:17)

I went on to ask if she thought students would be able to articulate better in English. Ms. Cindy answered:

I don't let them use English to convey their thoughts, so I'm not sure; you would have to ask their English teacher. However, for Chinese, they use the few vocabulary words they know to demonstrate that they understand the general idea, but they're unable to fully express what they want to say. Analyzing or arguing a point is a challenge for them. (19:01)

Ms. Cindy stated her teaching practices have been greatly changed since she started to teach in Jianji School. In the past, she was not as strict with standards for listening, speaking, reading, and writing. Her expectations for their behavior weren't as intense as they are now. Now she disciplines students much more and has much higher standards. She would correct students immediately now, not just for academic problems, but also behavioral problems. She shared that these changes were caused by her realization that, in order to teach critical thinking skills, students need first develop a strong language ability so that they can speak freely about their thoughts. She was concerned her students were far from reaching that proficiency in Chinese from her assessment.

I then asked for her in her opinion about what else school can provide for her in terms of developing students' critical thinking skills. She shared that having small meeting groups

for reflection was a benefit for her, as it gives her important opportunities for self-reflection. Ms. Cindy also commented that having critical peer meetings regularly is hard as there are a lot of other tasks and often teachers would forget to attend this type of self-reflective meeting. She said:

We need to have someone push us to do this, otherwise we may slack off and forget to have these discussions. (37:45)

Ms. Cindy's class showed a traditional top-down teaching. Although students were busy physically with copying tasks, they were not mentally active in constructing knowledge. This class did not keep students engaged. Ms. Cindy only put her energy into the requirement of rote memorization and completely forgot why and how learning can make sense to the learner. Ms. Cindy seemed to understand that instilling knowledge can neither exclude Chinese nor the critical thinking skills. Creating learning space that allows students to discover, to exchange, to examine their own answers, and to learn from each other is the right way to teach. However, Ms. Cindy failed to transfer her understanding into her teaching in the observed class.

Teaching Critical Thinking at Varying Degrees

Research results demonstrate that there are effective strategies for teaching critical thinking skills, both generic and content specific. Notably, the opportunity for dialogue, exposure of students to authentic or situated problems and examples and mentoring all had a positive effect on critical thinking skills. Abrami et al. (2015) further explain the three key factors: dialogue, anchored instruction, and mentoring. How well do three teachers teach critical thinking skills in Jianji Chinese immersion school was investigated through how well they can engage students into meaningful talk and how often the high-

level thinking questions were asked to engage students to develop their critical thinking skills. Teacher Questions Using Bloom's Taxonomy" (Appendix V) was used to record on the number and quality of questions posed during this class. The six levels of Bloom's Taxonomy are remembering, understanding, applying, analyzing, evaluating and creating. Remembering is the lowest level and creating is the highest level. These six different level questions' keywords exemplify the critical thinking skills that required for that level of questions.

The rate of high-level thinking questions that were asked by three teachers in these three classes is recorded in Table 10.

Ms. Amy asked 2 questions that required high-level thinking skills. These 2 questions account for 5% of the 40 questions she asked. Ms. Bernice asked 5 questions that required high-level thinking skills. These 5 questions account for 19% of the 26 questions she asked. Ms. Cindy asked 2 questions that required high-level thinking skills. These 2 questions account for 4% of the 53 questions she asked.

The rate of high-level thinking questions is clearly different among these three teachers. It seems that the fewer questions asked, the more in-depth discussion would take place. Second, I examined the teacher's behaviors keyed to critical thinking development. The three teachers all listened carefully to their student's responses but their responses were markedly different. After asking a question, Ms. Amy and Ms. Bernice paused and gave

Table 10

Observation Tally

High-level Thinking Questions	Ms. Amy	Ms. Bernice	Ms. Cindy
Creating	2	5	0
Evaluating	0	0	2
Analyzing	0	0	0

wait time for students to think, then asked for one student to answer while the rest of group was expected to listen carefully. When a student provided an incorrect answer, both Ms. Amy and Ms. Bernice either repeated the student's answer to clarify the response for everyone or asked for different opinions among the students. This type of discussion generated or resulted in developing the correct answer. Ms. Cindy did not provide wait time for students and answered her own questions most of the time. When high-level questions were asked, Ms. Bernice was particularly skilled in holding back her own input. She would wait a bit and then pose a follow-up question to invite more students to comment or rethink the reasons behind their answer to stimulate more meaningful discussion.

Extensive research has consistently demonstrated that the quality of student verbal responses improves when teachers regularly employ the "Wait Time" technique. (Tobin 1986) Wait Time refers to that period of teacher silence that follows the posing of a question. Wait Time I refers to the pause after asking a question, and Wait Time II refers to the pause following an initial student response. Ms. Bernice employed wait time I in her first question and employed wait time II following the student's initial answer.

Ms. Bernice modeled how to comment on other's opinions and facilitated the group discussion. "I like that XX is able to listen carefully and say his/her own thinking." "Your answer is different; can you tell us why you said that?"

Ms. Amy often would provide her viewpoint of an answer to the entire class and, once her opinion was stated, the discussion ended and the class moved to the next question.

Ms. Cindy did not take time to review student responses or give opportunities for students to clarify or expand their answers. She commented immediately if the answer was correct or not. She then either answered that question herself with a yes or no question following, or she immediately looked for other answers by saying “No, that isn’t correct. Who else has a correct answer?” Ms. Cindy was not providing wait time and as a result, her students could only passively record words and answers from her.

Ms. Bernice’s intention and her skills of teaching student’s critical thinking skills were clearly observed in her teaching practices. She was able to organize her class in different forms to reinforce the discussion and learning among students. She set up clear expectations of how students should participate in her different settings and consistently introduced varied techniques to reinforce students’ participation. Ms. Bernice teaches her students how to learn from each other by praising students’ specific behaviors to engage in more meaningful discussion, with questions such as, “I see XX is looking at who is speaking so that XX learns from that person,” and “I really like the way XX waits until her name is called then answers.”

Ms. Bernice was happy with her class because she was able to organize her students, take time herself to listen to others’ responses, and direct the entire class to learn from the conversation. Ms. Bernice’s teaching practice reflected her understanding that in a good Chinese language class students are set up to learn from each other, not just from teacher, by sharing their thoughts and receiving other’s input.

The result of Ms. Bernice’s ability to embed the teaching of critical thinking skills into the Chinese language learning process was that her class showed a high degree of student engagement. Students were actively thinking, organizing their thoughts, and

engaging in the discussion to attain a deeper understanding of the content knowledge that Ms. Bernice intended to teach. Ms. Bernice was able to teach critical thinking skills while teaching Chinese language skills effectively.

Ms. Amy was happy with the level of engagement her students had and the learning results her students showed during the independent practice time where almost all her students were able to complete the exercises that required short-term memory. She commented that the class went well because she was able to finish her teaching plan and the knowledge was well-learned. Ms. Cindy felt that the part of the lesson focused on reviewing the meaning of words and copying words went well because every student was engaged with this activity and it is an effective way to prepare for dictation.

Ms. Amy and Ms. Cindy believed that successful Chinese teaching is getting through the content knowledge planned for that class session, and both Ms. Amy and Ms. Cindy's classes focused a great deal on rote memorization practice and contained very limited to zero critical thinking skills instruction for their students. These two teachers' questions were mostly requests for remembering and recording sounds and forms of the Chinese words. Students were not provided a chance to share what they understood and what confused them. How did students comprehend that the content knowledge was not addressed? How were the students' own life experiences connected to the lack of content knowledge? Although Ms. Amy's class seemed to have higher engagement from her students than Ms. Cindy, students in both Ms. Amy and Ms. Cindy's class were not as engaged and enthusiastic about learning as the students in Ms. Bernice's class. In fact, both Ms. Amy and Ms. Cindy teach very limited critical thinking skills in their class.

Besides observing the classes, I used survey questions to collect teachers' self-assessments of how they design their questions and conduct their classes to teach critical thinking skills (Table 11).

All three teachers believed they were designing open-ended questions, knew the goals or purposes of their questions, and chose important, rather than trivial, topics to emphasize student's in-depth exploration of essential or key questions to foster critical thinking skills development.

All of these three teachers believed that they used probing questions to encourage students to elaborate and support student's assertions and claims, allow divergent thinking and original responses, and help students deal with incorrect responses.

The teachers all marked that they can't avoid "yes" and "no" questions when teaching.

Ms. Amy marked 7 yes to confirm that she was implementing these practices when designing questions and conducting her class. Ms. Amy marked 3 no that say she was still not able to do so. These three practices include that she can't make sure that all her students develop a deep understanding of key concepts and knowledges by emphasizing high-level thinking questions, avoid yes or no questions, and anticipate student responses.

Ms. Bernice marked she was doing 9 of the practices and missing one of the 10. The practice that Ms. Bernice marked no is avoiding "yes" and "no" questions. Later, during the interview, Ms. Bernice told me that she was not sure how to confirm if

Table 11*Self-Assessment Survey*

Action item	Ms. Amy	Ms. Bernice	Ms. Cindy
Do I make certain that all students develop a deep understanding of key declarative (i.e., facts, concepts, generalizations, and principles) and procedural (i.e., skills, processes, and procedures) knowledge by emphasizing higher-order questioning?	n	y	y
Do I encourage discussion in my classroom by using open-ended questions?	y	y	y
Do I decide on the goals or purposes of my questions?	y	y	y
Do I choose important--rather than trivial--material to emphasize students' in-depth exploration of essential/key questions?	y	y	y
Do I avoid "yes" and "no" questions?	n	n	sometimes
Do I use "probe" questions to encourage students to elaborate and support assertions and claims?	y	y	y
Do I avoid questions that "contain the answer"?	y	y	sometimes
Do I anticipate students' responses to my questions, yet allow for divergent thinking and original responses?	n	y	y
Do I use purposeful strategies for helping students deal with incorrect responses?	y	y	y
Do I make effective use of Wait Time I and II?	y	y	y

students are understanding if she needs to avoid the yes or no questions. Since she was not able to figure out another way to do quick check, she is using this question to remind herself to be attentive to students' feedback in the moment. Ms. Cindy marked herself as doing 8 of the practices listed on the survey and doing 2 of the practices sometimes.

Comparing a teacher's actual teaching ability with that teacher's self-assessment, I found that the teachers differ in their ability to assess their own ability to teach critical thinking skills. Ms. Bernice's self-assessment and Ms. Bernice's actual ability to teach critical thinking skills almost coincide. Ms. Amy's self-assessment and their actual ability to teach critical thinking skills partially coincide. Ms. Cindy's self-assessment and Ms. Cindy's actual ability to teach critical thinking skills differ considerably.

In summary, teachers at Jianji school teach critical thinking skills to varying degrees. The knowledge and ability of why and how to pose high-level thinking questions varies, too. The research result also shows there is a discrepancy between a teacher's self-recognition in how well they can teach critical thinking skills with their actual teaching ability in developing student's critical thinking skills.

Different Knowledge Levels among Teachers

The three participating teachers all grew up in mainland China. By the time they immigrated to the U.S, they all had higher education degrees from mainland China and, once in the U.S. had started to pursue their master's degrees. Ms. Bernice graduated from her master's program from the University of Southern California. Ms. Amy and Ms. Cindy have two master's degrees, one from China and one from the U.S. At least one of the master's degrees they each obtained is education related. The Chinese language

proficiency they have is a natural result of their education that was completed in mainland China. The experience of attending master's programs in the United States gave them first-hand experience of the equal teacher-student relationship that commonly exists in the U.S.

The teachers have very similar teaching experiences. Ms. Bernice and Ms. Cindy joined Jianji in August of 2014 and Ms. Bernice joined Jianji half a year later. Their formal teaching practices all started at Jianji. They all taught as teaching assistants for 2 years and then were promoted as lead teachers. Through these years of actual teaching experience, these three teachers have developed a solid understanding of the subtle cultural differences and expectations between teachers here in the U.S. and in China. When these three teachers were listing the areas they would consider when planning for their classes, they all focused on students' academic ability in understanding the content knowledge and students' interest in the topic that would be taught.

The three teachers know that the teacher does not automatically represent the correct knowledge or the final authority; knowing students' interest and engaging students in the learning process are the crucial considerations that are needed when planning for their class teaching. When they applied this understanding, their classes went smoothly. There were no student behaviors issues observed from these three class observations. I did not observe the challenges mentioned in previous studies of the misunderstanding between Chinese teachers and U.S. students based on cultural differences. However, from time to time, the teacher will still ask me for suggestions of how to deal with parents in a culturally appropriate way or for a second opinion in analyzing a certain student's unusual behaviors.

I was surprised to read the teachers' descriptions of Jianji's education philosophy and educational goals. The words like positive, open-minded, self-disciplined, love, helpful, good learning habits, sound personality, and introspection capabilities were mentioned. These three teachers knew some of the mission of Jianji and were able to capture Jianji's focus on student character development, but they missed the academic, bilingualism, multicultural awareness, and critical thinking ability development.

Teachers also were unclear about what critical thinking skills are and how to teach them. Ms. Amy tried to explain her understanding of critical thinking skills for about 3 minutes and then concluded she was not clear about what they are nor how to assess students' critical thinking skills ability. Ms. Cindy confused language ability development and critical thinking skills development. She commented that she knew Jianji asked teachers to teach critical thinking skills, but she thought that is too hard to teach. In her words, "They (students) may be able to understand one thing but have trouble saying it..... they use the few vocabulary words they know to demonstrate that they understand the general idea, but they're unable to fully express what they want to say. Analyzing or arguing a point is a challenge for them" (17:17)

Ms. Bernice's commented that critical thinking skills are very important not just for students but for everyone to obtain. In her words, critical thinking is to "jot down details about our ways of thinking...and look at different situations...Even if people have the same ideas as someone, each one still has each's own viewpoints...Taking in ideas or speaking them out loud with others is part of the learning process." (27:07)

The three teachers all commented that the teacher-to-student in-class interaction is the way to teach critical thinking skills. Ms. Bernice provided more samples of how she

thinks that grouping students to work on project is another way she teaches critical thinking skills. One example that three teachers all provided of teaching critical thinking skills is for the teacher to deliberately do something wrong in the class and invite students to spot the mistake. They emphasized that through this way of interaction, students would learn not to blindly listen to authority and obey orders from top down instruction. Although this is a very narrow view of how to teach critical thinking skills, it is commonly believed by all three participants.

When asked about the difficulty in teaching critical thinking skills, the teachers all mentioned not having enough class time to teach critical thinking skills. Their concerns were if they spend time in teaching critical thinking skills then they won't have time to teach the content that is set forth for the class. Ms. Bernice has clearly observed that posing high-level thinking questions is already embedding language learning with critical thinking development in her class; however, it seemed to me she was also confused about whether critical thinking skills development were something separated from language learning.

In summary, the biggest challenge for teachers to teach critical thinking skills is their lack of knowledge about what critical thinking skills are and, therefore, how to teach them. Teachers need to be provided more information about critical thinking skills and to learn about how to pose high-level thinking questions to connect students' Chinese language learning with critical thinking skills development. Teachers also needs to expand their horizon of ways to teach critical thinking skills inside and outside the classroom.

Influence of Instructional Leadership on Teachers

The three teachers all stated that their teaching practices have changed since they began teaching in Jianji. Ms. Amy and Ms. Bernice commented that the concrete example of changes in them is their thinking about teaching. They felt they were better now in teaching. Many of their unclear thoughts became clearer with experience. In addition, Ms. Cindy commented that her biggest improvement was knowing how to set higher expectations for her students, including student behaviors and learning outcomes.

Currently in Jianji Chinese immersion school, the support provided to teachers are a professional development day, being observed by colleagues and receiving feedback, observing other's teaching and providing feedback, peer discussions, and weekly teaching preparation meetings with the principal.

These three teachers commented that the greatest influence on their behavior changes came from the weekly teaching preparation with the principal. Through the weekly teaching preparation, the principal cleared up confusion, gave them confirmation of their plans, shared effective practice, instilled confidence in dealing with parents, and provided mental support. Ms. Amy marked the second greatest influence on her teaching behaviors as the professional development seminar hosted by the school in the past. Ms. Bernice marked the second great influence for her behavior changes as observing her colleagues' teaching and providing her feedback. Ms. Cindy marked the second great influence for her behavior changes as the peer discussion meetings with her critical peers.

In the last survey section, teachers provided their feedback toward principal's leadership skills. Ms. Cindy marked full score, 35 out of 35 in all the seven

questionnaires in the evaluation of principal's leadership. Ms. Amy and Ms. Bernice marked four out of seven skill full marks of 5 points.

The teachers marked the strongest leadership skills as showing high sensitivity and concern for others' needs and feelings, fostering high levels of participation and involvement in decisions, and being consistently helpful and responsive to others. The second strongest leadership skill recognized by the teachers is thinking very clearly and logically.

The weakest leadership skills noted in the survey are approaching problems with facts and logic, strongly emphasizing careful planning and clear timelines, and being able to be an inspiration to others.

CHAPTER V: CONCLUSION

Summary of Findings

Among the three teachers, Ms. Bernice knows most about critical thinking skills and is most skillful in teaching critical thinking skills. She was able to pose high-level thinking questions and organize her students to learn from each other. Ms. Bernice believed the successful Chinese language class is when students can use Chinese to learn from each other, thus increasing Chinese skills from the in-depth discussion. In her class, she put effort into creating spaces that promote discussion and use high-level thinking questions to engage students in the group discussion. She modeled the methods of restating arguments and ideas and asking for clarification, and further expanded the discussion to provide more practice to think deeply and to respond appropriately to criticism. As a result, her class showed the highest degree of student engagement and enthusiasm among the three observed classes. Ms. Bernice's students were all highly motivated and actively thinking, sharing, and learning from each other. In short, Ms. Bernice can effectively teach students Chinese language and can help students develop critical thinking skills.

Ms. Amy and Ms. Cindy have a narrow view toward critical thinking skills. They thought that to teach critical thinking skills is to teach students not to listen blindly to the authority (teacher). They also believed that a successful Chinese language class is when students can memorize the Chinese content knowledge. Because of this, Ms. Amy and Ms. Cindy's classes show a significant teaching focus on rote memorization practice. They posed questions that are mostly requests to remember and record sounds and forms of the Chinese words. Students were not provided a chance to share what they understood

and what confused them. How did students comprehend that the content knowledge was not addressed? How is it that the students' own life experiences connected to the content knowledge were not addressed? Although Ms. Amy's class seemed to have a higher student engagement than Ms. Cindy's class, students in both Ms. Amy and Ms. Cindy's class were not as engaged and enthusiastic about learning as in Ms. Bernice's class. Both Ms. Amy and Ms. Cindy teach very limited critical thinking skills in their classes.

Teachers at Jianji school teach critical thinking skills to varying degrees. The knowledge and ability of why and how to teach critical thinking skills is varied, too. This result also shows there is a discrepancy between a teacher's self-recognition in how well they can teach critical thinking skills and their actual teaching ability in developing student's critical thinking skills.

The research data shows that teachers have different knowledge levels about critical thinking skills. Each of the teachers applies what they understand to their teaching. What they believe guides their action. Effective teachers understand that in order to teach critical thinking skills, they need to consider both a student's prior knowledge and their interests when planning. Strong teachers know that it is important to engage students in the learning process by asking questions and assisting a student's discovering. Conversely, ineffective teachers show a lack of ability in posing high-level thinking questions and creating a space to promote discussion among students. They tend to dominate the discussion rather than facilitate the discussion. These teachers also felt uneasy allocating their time to teach both Chinese language and to develop student's critical thinking skills.

Three novice level teachers have developed appropriate classroom management skills to teach students Chinese in the U.S. since they joined Jianji. Their ability to teach Chinese and critical thinking skills is varied. Three teachers all commented that the most useful practice that supports their teaching of critical thinking skills is the weekly preparation meeting with the principal. They also recognized that their teaching practices have changed since they started to teach at Jianji school. The assessment of the principal's leadership resulted in a score of 32 out of 35 on the average. The principal's instructional leadership was strongly influential on teachers' teaching practices.

Contribution to Theory and Existing research

Teaching Critical Thinking Skills in Chinese Immersion School

These three participating teachers are of similar age and have been in Jianji for almost same length of time. As a professional teacher, each of them received almost the same environment to develop their teaching skills. These three teachers were highly motivated to increase their Chinese teaching skill. However, their actual ability to teach Chinese showed significant differences from the observed classes.

Ms. Bernice believed the successful Chinese language class is when students can use Chinese to learn from each other and thus increase Chinese skills from the in-depth discussion. In her class, she put effort into creating spaces that promote discussion and using high-level thinking questions to engage students in the group discussion. She modeled the methods of restating arguments and ideas and asking for clarification and further expanded the discussion to provide more practice to think deeply and respond appropriately to criticism. Ms. Bernice's class showed the highest degree of student engagement and enthusiasm among three observed classes. Ms. Bernice's students were

all highly motivated and actively thinking, sharing, and learning from each other. In short, Ms. Bernice can effectively teach both Chinese language and critical thinking skills development.

Ms. Amy and Ms. Bernice believed that a successful Chinese language class is when students can memorize the Chinese content knowledge and teachers can complete their planned activities. Because of this, Ms. Amy and Ms. Cindy's classes showed a great focus on rote memorization practice. The teachers posed a lot of "yes or no" questions to check if students were following along, and the other type of questions they posed were required rote memorization to see whether a student remembered how to write and how to read Chinese words. Students were not given a chance to share what they understood and what confused them. Students' comprehension of the content knowledge was not addressed. The students' own life experiences as connected to the content knowledge were also not addressed. Although Ms. Amy's class seemed to have higher student engagement than Ms. Cindy's class, students in both Ms. Amy and Ms. Cindy's class were not as engaged and enthusiastic about learning as in Ms. Bernice's class.

Sciven and Paul (2004) postulated that to develop critical thinking skills, students should understand the relationship of language to logic. I think this statement is also true for a teacher. If a Chinese teacher aims to teach critical thinking skills, he/she should understand the language and logic, too. As psychologist Lev Vygotsky (1978) said, language actually shapes thoughts, feelings, and experiences. It produces "fundamentally new forms of behaviors" (p.24) and it is through language that children come to know the

world (Vacca, Vacca, Gove, 1995). When students are asked to express their thoughts and their views in Chinese class, Chinese becomes the medium for them to connect with others; Chinese becomes a tool to construct their knowledge toward their living world. In other words, Chinese becomes real to them. Students in Ms. Bernice's class were actively involved in authentic intellectual engagement and were excited to share with others in Chinese. The Chinese learning begins with high-level thinking questions posed by the teacher. Knowledge comes from sharing with other students, receiving stimulations and triggers from the original thoughts, feedback and input from others, and the more in-depth discussions that lead to deep conceptual understanding of new Chinese knowledge. The intellectual enjoyment comes from interacting with peers and teachers when using Chinese in discussing questions that require high-level thinking skills.

“Why do you think that is that?” “What would you do if you were the character in that story?” “In your opinion, which one is the preferable choice and why is that?” Focusing on posing high-level thinking questions and organizing the learning space to allow students to learn from each other resulted in higher student engagement and in return, students' Chinese ability increased when they were actively participating in answering the high-level thinking questions.

Kabilan (2000), a researcher who studies language acquisition, argues that in order for students to become proficient in a language, they need to be able to think creatively and critically when using the target language. This insight was based on his experiences researching language education. Developing students' ability to reflect on their own learning process can help them progress in learning. Higher-order thinking

skills promote higher-order learning skills, which in turn enable students to reach higher levels of language proficiency (Renner, 1996).

Comparing the data collected from this study, I conclude that in a Chinese immersion program, if a teacher is only focused on passing down the knowledge of a language, the class becomes less interesting and practical. Engaging students in high-level thinking skills through discussion enables students to recognize that they can actually use Chinese to engage with real, complex, and abstract discussion that leads to better Chinese comprehension and Chinese skills development. The advantages of teaching critical thinking skills in a Chinese immersion program were clearly observed through this study.

Chinese Teacher's Critical Thinking Ability

From this study, we found that there is a gap between teachers' self-assessments of their critical thinking skills teaching ability and their actual critical thinking skills teaching ability. Ms. Bernice's self-assessment and Ms. Bernice's actual ability to teach critical thinking skills almost coincide. Ms. Amy's self-assessment and their actual ability to teach critical thinking skills partially coincide. Ms. Cindy's self-assessment and Ms. Cindy's actual ability to teach critical thinking skills significantly differ. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking (Scriven & Paul, 2004, p. 1). A close look at each of these three teacher's reveals how the self-directed, self-corrective thinking, self-monitored, and self-disciplined characteristics reflected in their talk and how well each of their own critical thinking abilities were exhibited from their talk and their self-assessment.

Ms. Bernice thinks then talks; when she talks, she talks slowly. Often, at the end of her speech, she says, “This is what I can think of now, what are your thoughts?” Ms. Amy and Ms. Cindy both talk fast. There were few times during the interview when they started to respond before I completed my questions. Ms. Cindy’s speaking speed is especially fast. During her interview, I often had to recap what she said to confirm I received the right information, in spite of the fact that the interview was conducted in my native language.

Critical thinking skills entail effective communication and problem solving abilities, as well as a commitment to overcome native egocentrism and socio-centrism (Scriven & Paul, 2004, p. 1). The findings from the three participating teachers’ own critical thinking ability confirmed that the “Open-minded, fair-minded, trying to be well-informed, attentive to other’s views and their reasons, willing to consider alternatives and revise beliefs” are the dispositional and attitudinal characteristics of a critical thinker (Glaser 1941, Ennis 1996, Facione 1990).

The findings from each teacher’s ability to teach critical thinking skills further confirmed Ennis’s (1987) suggestion that “Critical thinking is reasonable reflective thinking focused on deciding what to believe or do. A critical thinker not only possesses critical thinking skills but also exercises them when (and only when) it is appropriate to do so. None of the skills mentioned above can be developed if a teacher has not developed his/her critical ability in using her/his language to understand oneself clear, to listen carefully to the others, and to reflect in order to continue one’s self growth.”

A teacher's own critical thinking skills are the first professional requirement needed to teach critical thinking skills to students in a Chinese immersion program that aims to develop students' critical thinking skill along with the development of students' bilingual competency.

Jianji teachers are hindered in their ability to teach critical thinking skills because they lack the knowledge of what critical thinking skills are. Therefore, as a result of lack of knowledge of what is critical thinking skills, the teacher is not able to teach them.

Teaching Chinese critically in the U.S.

Although the three teachers who participated in this study showed different abilities in teaching critical thinking skills, they all seemed uneasy with how to better allocate their teaching time to combine the teaching of Chinese and the teaching of critical thinking skills. Teachers expressed that they sometime felt it difficult to balance their teaching time between Chinese language and critical thinking skills.

English and Chinese are typologically different languages with radically different orthographic systems. Chinese characters are logographic based on morphemic, meaning-bearing syllables with graphic units. Pinyin is used to teach students to type Chinese characters on the computer as well as to learn how to read and write in Chinese. Studies of both Chinese in foreign language (CFL) and Chinese as second-language (CSL) contexts report that recognizing Chinese characters is the most challenging reading task for English speakers (Everson, 1998).

In Jianji, when students graduate at fifth grade, they are required to have mastered 2500 characters. To memorize 2500 characters' sound, meaning, and font requires a great

deal of recitation practice. Ms. Amy and Ms. Cindy posed a large portion of their questions to assess students' memorization of Chinese knowledge and therefore a great deal of class learning time was spent in rote memorization tasks. Even skillful teacher Ms. Bernice felt it difficult to find the balance of teaching Chinese linguistic knowledge versus developing students' critical thinking skills. Yue (2017) points out that one major teaching obstacle for Chinese teachers in DLBE programs is how to teach distinctive linguistic features of Chinese. This issue lies in the language's unique logographic system (opaque orthography) with its sound relationships, different orthographic rules, and tonal features. Chinese teachers always struggle with keeping a fine balance between raising and sustaining the students' motivation while ensuring that they are not intimidated by the vocabulary or bored by memorization work.

Does that mean teaching Chinese linguistic knowledge has to be a boring memorization drill? That can be explored by understanding the formation of Chinese character. Evidence has shown that Chinese children are aware of the specific cuing functions of radicals and phonetics in semantic– phonetic compound characters. That is, with development, children become increasingly skilled in analyzing unknown characters on the basis of their sub-character components (radicals and phonetics), and they make use of this knowledge for a variety of literacy skills (e.g., Anderson et al., 2003; Chan & Nunes, 1998; Cheung et al., 2007; He et al.2005; Ho et al., 2003; Shu & Anderson, 1997).

Children who study Chinese in the United States lack the environment for Chinese characters. Compared with the students learning Chinese in China, they need

teachers even more capable in implementing effective Chinese character teaching methods that would reduce the difficulty of learning Chinese characters and increase the enjoyment of learning Chinese. Teachers teaching Chinese in the U.S. should pay close attention to how to make sure that the students are actively constructing their Chinese knowledge and can therefore experience the enjoyment of exercising their brains through the learning process. From my actual teaching experiences as well as the research findings presented above, to effectively teach Chinese in the U.S., a teacher needs to pay more attention to developing students' metalinguistic awareness by posing questions that can bring students to compare and contrast Chinese language forms and systems. Teachers must make efforts to develop a student's awareness of how the Chinese character is formed and must help students gain familiarity and acquisition of chunks, radical, and the specific cuing functions of radicals and phonetics if we want to teach Chinese well to the U.S. students. The Chinese teacher should not only require a student to memorize the orthographic, phonological, and semantics of Chinese language, but must stimulate students' high-level thinking skills to analyze the structure of the character and guess the sounds and the meaning of a character. The study done by Liaw (2007) revealed that critical thinking is an ongoing process in which all language learners must engage, regardless of their language proficiency level.

This study further revealed that to teach Chinese well in the U.S., Chinese teachers can teach the rule of Chinese character formation. Teachers demonstrate how to encode and decompose Chinese character to develop a student's awareness of character formation. Teachers ask students to analyze characters and ask them why and how they help themselves to remember this and that character, which would allow students to not

only learn Chinese, but also deepen their understanding of the Chinese character formation as well as develop their high-level thinking skills.

Chinese Immersion Program Instructional Leader

To teach Chinese in the U.S. requires Chinese teachers who possess strong Chinese competency, culturally appropriate classroom management skill, and Chinese language teaching skills. The three teachers in my study possess strong Chinese proficiency as a primary outcome of the education they received from mainland China. They need to become familiar with language use in a K-8 classroom setting and learn about the teaching skills that enable them to teach Chinese well in the U.S.

Previous studies show that the challenge for Chinese teachers to teach Chinese in U.S. is “maintaining a hierarchical but harmonious relationship between the teacher and student” (Hu, 2002, p. 98). Another study revealed Chinese teachers’ misunderstandings were often due to their erroneous assumption of authority in the classroom, which caused classroom management problems (Xu, 2012). However, through six years of actual practice and influence and support provided by the school, these three teachers were able to acquire classroom management skills and proper instructional language and techniques to teach Chinese language. The classroom management issue was not observed in this study.

The findings about leadership skills show Jianji’s weekly preparation meeting with principal provides the greatest influence on the Chinese teacher’s teaching practice. There are two discussion items in each of Jianji’s weekly preparation meetings. The first item is the teaching plan for the following week and the second is questions related to the

class. The teacher usually presents their next week's teaching plan, including the content and teaching activities first and I then provide guidance and suggestions on content selection, weekly objective, and activities design. The guidance and suggestions provided to teachers have successfully assisted Chinese teachers to gain the classroom management skills to effectively maintain a hierarchical but harmonious relationship between the teacher and student (Hu, 2002) and to avoid misunderstanding due to teacher's erroneous assumption of authority in the classroom (Xu, 2012). The suggestions provided for the teaching activity design helps teachers find practical pedagogical strategies to keep a fine balance between raising and sustaining the students' motivation while ensuring that they are not intimidated by the vocabulary or bored by memorization work (Yue, 2017). The findings related to Chinese teachers' challenges observed from the weekly preparation meeting are consistent with previous studies done by Hu, 2002, Xu, 2012, Yue, 2017, and Howard & Leo, 1998.

The three teachers have done a good job in selecting age appropriate materials to engage students' Chinese learning; they have formed a teachable environment for their teaching and they are responsive and attend to student's needs when they are teaching. Chan Lu and Magaly Lavadenz (2014) point out that novice Chinese teachers need ample opportunities for thoughtful anticipatory and retroactive reflection centered on student learning and grounded in the knowledge of language-specific pedagogical content knowledge. The results from instructional leadership skills further support research done by Cloud, et al., 2013 and Lindholm-Leary, 2001 that the principal in bilingual school is also responsible for instructional leadership.

In conclusion, the principal in this study has a great influence in supporting teacher's teaching skills development. The principal is able to provide instructional mentorship as well as create a supportive atmosphere for Jianji's teachers. This finding is echoed in Heider's 2005 study which examined four mentoring programs and found that mentoring by a veteran teacher, novice teacher learning communities, and peer coaching keep new teachers motivated and enthusiastic while increasing their skills and self-efficacy.

Contribution to Practice/Recommendations

This study shows that teachers' critical thinking ability is different, their ability to teach students critical thinking skills is also different, their self-recognition could be inaccurate, discrepancies exist between self-assessment of how well they can teach and their actual teaching ability. Teachers teach who they are. If the aims of a Chinese immersion program are not only teaching a language but engaging students in their thinking skill development, then a very important aspect of a teacher's development is to develop the teacher's own critical thinking ability.

I realized that the professional development meetings should not only provide guidance and suggestions to develop teachers' instructional skills. This type of top down PD approach makes our teachers the passive receivers of teaching pedagogy. We want to plan professional development that can help our teachers become better critical and reflective thinkers.

Mandarin teacher education is still in its initial developing stage and is faced with many challenges to produce high-quality teachers (Liu 2017). Recent research in language teacher education emphasizes the impact of pre-service or in-service teachers' self-reflection (Richards, 1998; Richards & Lockhart, 1994; Spicer-Escalante & deJonge-Kannan, 2016). Therefore, the first recommendation from this study is that teacher professional development should include activities that require and encourage teachers to explore their beliefs and attitudes that can directly impact and influence their teaching practices.

The majority of Chinese teachers come to the U.S when they complete their bachelor's degree. In China, the classroom teacher represents authority and knowledge. Students are expected to listen to the teacher and are rarely given an opportunity to articulate and form their own opinions. All three teachers deliberately act wrong to allow students to understand that teachers are not always correct. The fact that teachers also make mistakes showed that these three participating Chinese teachers know that if they are teaching students to be the critical thinkers, their students should not listen to someone blindly. However, there are some deeply entrenched practices that are hard to give up, such as frequently checking to see if their students have memorized the planned knowledge. It is not easy to change teacher's mindset from top down teach to becoming a facilitator to engage students in meaningful conversation by applying Chinese in the natural dialogue.

Instructional leaders should consider and design action plans that can generate discussion and help teachers explore and make connections between their beliefs and practices. Fortunately, I discovered that a teacher's ability to teach critical thinking skill

is influenced greatly by school leadership, thus by changing the instructional leader and teachers' weekly meeting approach from providing suggestions to asking high-level thinking questions will help those teachers to become reflective thinkers themselves, and thereby makes teaching critically a reachable goal.

A future study could focus on gaining a better understanding of a teacher's action and their thinking related to teaching critical thinking skills. The researcher for the new study can pose more questions to uncover a teacher's self-realization of how their actual teaching practice connects with students' critical thinking skills development. The data collected through my current study can be used for the reference and background information when the participating teachers reflect on their learning and teaching analysis surrounding their belief and practices.

Teacher's professional skills advancement advance at a different pace. Some teachers may be able to move more quickly, like Ms. Bernice. Some teachers still have a long way to go to change their teaching approach to enable them to teach Chinese effectively as well as to develop student's critical thinking skills. These findings lead me to make my second recommendation: Professional development should be differentiated for the teachers who are in different places.

As Freire (1970) further points out, dialogue "is the encounter between men, mediated by the world in order to name the world" (p. 69). He also adds that "only the dialogue, which requires critical thinking, is also capable of generating critical thinking. Without dialogue there is no communication, and without communication, there can be no true education" (p. 73). I understand that for me to provide differentiated help for teachers with varied skills, I need to first develop my own skill to be able to stimulate the

critical dialogue. For example, I can purposely invite teachers to clarify the meanings of their actions and talk, bring everyone into analyzing an argument that ends without a fixed answer, and practice the team discussion conclusion to reflect agree or disagree, work toward a mutual mission but allow individual methods. I have not yet had the ability to pose the right questions to my fellow teachers when I am attempting to engage them in the critical thinking skills development. I understand that the skill of asking questions goes beyond asking the right kinds of questions to asking them in a manner neither threatening nor demeaning, and to receive responses in the same open and inviting way. But, I am encouraged by Parker Palmer's book, *The Courage to Teach*. "We know reality only by being in community with it ourselves" (Palmer, 2017, p.100).

Another way to provide differentiated professional development for teachers with varied skills would be through critical peer interaction. Teachers meet their critical peers to teach and learn from each other, and in this way scaffolding can take place and each teacher can benefit from the meaningful interactions. The critical peer activities could include encouraging teachers to discuss a question, asking one teacher to share one successful teaching practice and one concerns, and allowing her/his peers to comment on this teacher's share and question. By continuing to foster a learning community and allowing each one to fail, we can learn and grow along with others, a first step toward developing other's critical thinking skills.

In conclusion, I would encourage other Chinese immersion program leaders to first develop our own critical thinking ability, work on continual self-development, and cultivate a learning community— a community where everyone is looking for critical questions to allow deep reflection and everyone becomes clearer and clearer about their

educational philosophy and teaching behaviors, and moreover, everyone is happy to be there to support each other's continuing development. Second, a new professional development action plan is needed for the Chinese immersion school that aims to provide differentiated support for teachers with varied skills to continue professional development. The objectives of a teacher's professional development action plan should include not only understanding the school mission and acquiring Chinese language teaching pedagogy, but more important, assisting teachers to become reflective critical thinkers.

Limitation

This study was primarily conducted in collecting data from teachers' repertoires. It did not include data collected from the student's learning outcome, which could be another objective way to examine how well a Chinese immersion program teaches student's critical thinking skills.

Recommendations for Future Research

The data from this study shows that it is easier for teachers to master the skills to teach Chinese than it is for a teacher to implement instruction that enables a student's critical thinking development. This study in a Chinese immersion program investigated how three teachers pose high-level thinking questions to teach Chinese language and develop students' critical thinking skills. The study results show that posing high-level thinking questions strategically to create a space where students can actively exchange and learn from each other enables higher student engagement and thus results in learning

more Chinese language skills. To make this study more convincing and to motivate more Chinese teachers to teach student's critical thinking skills while teaching Chinese, I would suggest that a further study could assess student improvement in Chinese language acquisition to showcase the advantages of teaching critical thinking skills in Chinese immersion program.

Conclusion

With the rapid growth of Chinese programs in the U.S., the focus on Chinese education should shift from whether there is a place to learn Chinese to how to create an effective program for students to learn Chinese. This study explored the micro-level of how the teachers create such an environment to support students' critical thinking skills development while learning Chinese. The study shows that when a teacher poses high-level thinking questions strategically to create a space where students can actively exchange and learn from each other, Chinese language becomes a communication medium to enhance students' cognitive development, Chinese language becomes a necessary language for U.S. students to increase their ability to employ necessary cognitive and social strategies, and Chinese language allows them to think flexibly and abstractly about their lives. Students are happy and engaged and learn well in such a Chinese learning environment.

To create such a stimulating Chinese learning environment for students in the U.S., Chinese teachers should avoid wasting time in ineffective rote memorization drills and rather encourage meta-cognition when teaching character and reading. Posing high-level thinking questions allows students to articulate their process of analysis of the

structure of character to encourage students to be aware of the rule of character formation and direct their own thinking.

Chinese immersion program leadership should continue to dedicate energy into implementing differentiated professional development courses that encourage Chinese teachers to reflect their own learning experiences and their teaching philosophy and to make connections with their beliefs and actions; thereby eventually becoming reflected Chinese language teachers.

Note

1. Bloom's Taxonomy provides an important framework for teachers to use to focus on higher order thinking. By providing a hierarchy of levels, this taxonomy can assist teachers in designing performance tasks, crafting questions for conferring with students, and providing feedback on student work. The six levels are: Level I Knowledge Level II Comprehension Level III Application Level IV Analysis Level V Evaluation Level VI Creating (Anderson & Krathwohl, 2001, pp.67-68)

2. A chunk, or bùjiàn (部件), is a basic orthographic unit composed of more than one stroke. Although chunks may coincide in part with radicals and several studies referred ambiguously to radicals as chunks (for example, Taft & Zhu, 1997, pp. 761–762), they are not the same. Some radicals can be further decomposed into smaller chunks, such as the radical 音, which can be decomposed into chunk 立 and chunk 日. Moreover, radicals usually provide semantic information (i.e., semantic radicals or bùshǒu, 部首) or phonetic information (i.e., phonetic radicals), whereas chunks do not necessarily convey functional information. Furthermore, in some cases, a chunk can also be a radical. For example, character 婚 (hūn; marriage) has three chunks (女, 氏, and 日), while chunk 女 (nǚ; female) is also the semantic radical of character 婚. Given that a chunk is an intermediate-level orthographic unit in a character (e.g., the hierarchical model of lexical activation in Taft & Zhu, 1997), assessing the role of chunks in addition to radicals is one aspect in which this study wishes to complement the existing literature. In the present study, we use “chunks” that are defined by the Chinese Orthography Database (Chen, Chang, Chiou, Sung, & Chang, 2011).

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APPENDIX

APPENDIX I: INFORMATION SHEET FOR TEACHER

Research project: Teaching Critical Thinking Skills in Chinese English DLBE Program

I wish to invite you to take part in this research project. Please take time to read the following information to help you decide if you wish to take part. If you have questions, please get in touch with me.

What is the purpose of the project?

This project is the main phase of my Ed.D study at the University of San Francisco. The purpose of this project is to examine how the Chinese immersion program supports the development of elementary students' critical thinking skills and identify the support that teachers needed to improve their critical pedagogy practice in a Chinese immersion program.

What will happen if I agree to take part?

If you agree to take part, I will ask for your permission to carry out research in your classroom. You will be given this information sheet to keep it with yourself. You will be requested to sign a consent form. You have full authority to withdraw from your participation before the end of the fieldwork if you want. In this case, data collected from you will be wiped out and you will not be involved in any further studies. The research will involve the following approaches to collect data over 3 months:

March 2021-May 2021: data collection and classroom observations phase in which one of your classes will be observed with your permission and you will be asked to answer a pre-interview questionnaire

May 2021-June 2021: interview phase which will be held after these two actions:

The class observation is completed.

The pre-interview questionnaires are completed.

Will I be recorded, and how will the recording be used?

With your permission, I will take notes of classroom interactions during observation and video record your lessons and our conversations in the interview, which will be conducted in Mandarin Chinese, as that is the teacher's native language and we will be discussing teaching. None of these approaches relates to any judgment or evaluation of your teaching practices. You can believe that all will be merely observation, listening, and understanding. I will be the only person to write the notes and to get access to the raw recording. I will transcribe recordings. I will change all the names so that no one else will be able to identify you or your school. After I have finished doing the research, the recordings will be kept safely in a file in my home. The interview will be in the school, and you can feel free to select a time that suits you. If you feel uncomfortable recording anything during the conversations, feel free to let me know, and I will switch off the recording. I will not show the results to anyone else, but I will write and speak to other people from universities about them at conferences and seminars.

What are the possible benefits of taking part?

Your participation in this project will help me to answer the issues raised through this proposed study. During the fieldwork, you may help me to identify some problems related to teachers and students.

Will my taking part in this project be kept confidential?

It is guaranteed that all information gathered through observation, audio-recording, and interviews will be kept confidential. Your name and the name of students will be kept anonymous in any form of reporting. The data may be shared with my supervisors from the university; however, it will be shared by using university email. All the data will be stored on my personal computer with password protection and I will take special care of any paperwork which will not be discussed with anybody from outside.

Who is organizing and funding the research?

This research is being organized by myself, Helen Wong, under the supervision of Dr. Ursula Aldana from the University of San Francisco and is self-funded.

Thank you very much for reading this information sheet. I hope that you will enjoy taking part in this project and thank you for your time and interest.

Yours sincerely

Helen Wong

School of Education University of San Francisco

APPENDIX II CONSENT FORM

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Below is a description of the research procedures and an explanation of your rights as a research participant. You should read this information carefully. If you agree to participate, you will sign in the space provided to indicate that you have read and understand the information on this consent form. You are entitled to and will receive a copy of this form.

WHAT THE STUDY IS ABOUT:

This project is the main phase of my Ed.D study at the University of San Francisco. The purpose of this project is to examine how the Chinese immersion program supports the development of elementary students' critical thinking skills and identify the support that teachers needed to influence their practice in a Chinese immersion program.

WHAT I WILL ASK YOU TO DO:

If you agree to take part, I will ask for your permission to carry out research in your classroom. You will be requested to sign a consent form. You have full authority to withdraw from your participation before the end of the fieldwork if you want. In this case, data collected from you will be wiped out and you will not be involved in any further studies. The research will involve the following approaches to collect data over the months of May 2021 and June 2021:

1. May 2021: data collection and classroom observations phase in which one of your classes will be observed with your permission and you will be asked to answer a pre-interview questionnaire prior to the interview.
2. June 2021: interview phase which will be held after the class observation is completed

With your permission, I will take notes of classroom interactions during observation and video record your lessons and our conversations in the interview, which will be conducted in Mandarin Chinese, as that is the teacher's native language and we will be discussing your teaching. None of these approaches relates to any judgment or evaluation of your teaching practices. You can believe that all will be merely observation, listening, and understanding. I will be the only person to write the notes and to get access to the raw recording. I will transcribe recordings. I will change all the names so that no one else will be able to identify you or your school. After I have finished doing the research, the recordings will be kept safely in a file in my home.

If you feel uncomfortable recording anything during the conversations, feel free to let me know, and I will switch off the recording. I will not show the results to anyone else, but I will write and speak to other people from universities about them at conferences or seminars.

DURATION AND LOCATION OF THE STUDY:

Your participation in this study will involve taking pre-interview questionnaire, class

observation, and post-class observation interview. The pre-interview questionnaire will take you about 15 to 30 minutes to complete. One time of class observation will be a 45 minutes long duration at any date that you select. The post class observation interview will be about 45 minutes in duration. All the action mentioned above will take place in your school site, which is 1985 Louis Road, Palo Alto, CA 94303

POTENTIAL RISKS AND DISCOMFORTS:

I do not anticipate any risks or discomforts to you from participating in this research. If you wish, you may choose to withdraw your consent and discontinue your participation at any time during the study without penalty. If you have questions or concerns about your rights as a participant in this study, you may contact the University of San Francisco Institutional Review Board at IRBPHS@usfca.edu.

BENEFITS:

Your participation in this study is going to assist me greatly to gain a better understanding of how the Chinese immersion program supports the development of elementary student's' critical thinking skills and identify the support that teachers needed to influence their teaching practice in a Chinese immersion program. I would share my gain knowledge with you after my research is completed. The possible benefits from participating is you may find the study is helpful for your teaching practice when the results and findings is shared with you at the end of the study.

WHO IS ORGANIZING AND FUNDING THE RESEARCH?

This research is being organized by myself, Helen Wong, under the supervision of Dr. Ursula S Aldana from the University of San Francisco and is self-funded.

PRIVACY/CONFIDENTIALITY:

It is guaranteed that all information gathered through observation, audio-recording, and interviews will be kept confidential. Your name and the name of students will be kept anonymous in any form of reporting. Specifically, all the data collected will be stored on my personal computer with password protection and I will take special care of any paperwork which will not be discussed with anybody from outside.

COMPENSATION/PAYMENT FOR PARTICIPATION:

There is no payment or other form of compensation for your participation in this study.

VOLUNTARY NATURE OF THE STUDY:

Your participation is voluntary and you may refuse to participate without penalty or loss of benefits. Furthermore, you may skip any questions or tasks that make you uncomfortable and may discontinue your participation at any time without penalty or loss of benefits.

OFFER TO ANSWER QUESTIONS:

Please ask any questions you have now. If you have questions later, you should contact

me directly via my email: wong.helen988@gmail.com or via phone: 6506499666. If you have questions or concerns about your rights as a participant in this study, you may contact the University of San Francisco Institutional Review Board at IRBPHS@usfca.edu.

I HAVE READ THE ABOVE INFORMATION. ANY QUESTIONS I HAVE ASKED HAVE BEEN ANSWERED. I AGREE TO PARTICIPATE IN THIS RESEARCH PROJECT AND I WILL RECEIVE A COPY OF THIS CONSENT FORM.

Name of the Participant

Participant's Signature

Date

Name of the Researcher

Signature of the Researcher

Date

APPENDIX III: PRE-INTERVIEW QUESTIONNAIRE

1. Name:
2. Total Teaching Year:
3. Total Teaching Year in ABC School:
4. List your teaching credential and teaching preparation you completed prior joining ABC school
5. Use your own words to describe the ABC School's education philosophy
6. Do you think your teaching practices have changed since you taught in a Chinese Immersion School?
 - a. Yes
 - b. No
7. Which of the following is useful for your teaching? If the answer is more than two, then rate the practice by the usefulness level.
 - Professional Development Day Topic
 - Being observed teaching by my colleagues and receive the feedback
 - Observing my colleagues' teaching and provide my feedback
 - Peer's discussion meeting with your critical peer
 - Weekly teaching preparation with principal
 - List the areas that you may consider when you plan
8. Use Yes or No to answer the following questions:
 - Do I make certain that all students develop a deep understanding of key declarative (i.e., facts, concepts, generalizations, and principles) and procedural

(i.e., skills, processes, and procedures) knowledge by emphasizing higher-order questioning?

- Do I encourage discussion in my classroom by using open-ended questions?
- Do I decide on the goals or purposes of my questions?
- Do I choose important--rather than trivial--material to emphasize students' in-depth exploration of essential/key questions?
- Do I avoid "yes" and "no" questions?
- Do I use "probe" questions to encourage students to elaborate and support assertions and claims?
- Do I avoid questions that "contain the answer"?
- Do I anticipate students' responses to my questions, yet allow for divergent thinking and original responses?
- Do I use purposeful strategies for helping students deal with incorrect responses?
- Do I make effective use of Wait Time I and II?

9. You are asked to indicate how often each of the items below is true of the principal's leadership. Please use the following scale in answering each item: (Often = 5, Always = 4, Sometimes = 3, Occasionally = 2, and Never = 1). So, you would answer '1' for an item that is never true of you, '2' for one that is occasionally true, '3' for one that is sometimes true of you, and so on.

- Think very clearly and logically.
- Show high sensitivity and concern for others' needs and feelings
- Foster high levels of participation and involvement in decisions

- Approach problems with facts and logic
- Strongly emphasize careful planning and clear timelines
- Am consistently helpful and responsive to others
- Am able to be an inspiration to others

APPENDIX IV: TEACHER'S INTERVIEW GUIDE

Interviewee: _____

Date: _____

Starting Time: _____

End Time: _____

1. Did the lesson go well with your planning?
2. Is there any part of the lesson you think went well? Why?
3. If there is any part of the lesson didn't go as well as you plan? Why?
4. Can you share some good examples of you teaching critical thinking skills in your class?
5. In your opinion, what are the ways of teaching critical thinking with your students?
6. Do you find it difficult to teach critical thinking skills in your class?
7. Please describe one or two specific times when the teaching support is helpful for you.
8. Please describe in what way your thoughts/attitude about teaching have changed since you taught in ABC Chinese Immersion school?
9. What factors are causing the changes of your thoughts and practice about teaching?

APPENDIX V: BLOOM'S TAXONOMY

Class:

Date:

Time begin:

Time ended:

Number of questions asked:

Question Category	Tally 5min	Tally 10min	Tally 15min	Total	Percent	Comment
Creating						
Evaluating						
Analyzing						
Applying						
Understanding						
Remembering						

APPENDIX VI: TEACHER BEHAVIORS KEYED TO ACCOUNTABLE TALK

Class:

Date:

Time:

Teacher Indicators	Student Response			Observations
	Yes	No	N/A	
<p>Engages students in talk by:</p> <ul style="list-style-type: none"> • Providing opportunities for students to speak about content knowledge, concepts, and issues • Using wait time/allowing silence to occur • Listening carefully • Providing opportunities for reflection on classroom talk 				
<p>Assists students to listen carefully to each other by:</p> <ul style="list-style-type: none"> • Creating space that promote discussion • Providing clear expectations for how talks should occur • Requiring courtesy and respect • Reviewing major ideas and understandings from talk 				
<p>Assist students to elaborate and build on others' ideas by:</p>				

<ul style="list-style-type: none"> • Modeling reading processes of predicting, looking for key words, engaging prior knowledge, and so on • Facilitating rather than dominating the talk • Listening carefully • Asking questions about discussion ideas and issues 		
<p>Assists in clarifying or expanding a proposition by:</p> <ul style="list-style-type: none"> • Modeling methods of restating arguments and ideas and asking if they are expressed correctly • Modeling and providing practice at responding appropriately to criticism • Modeling expressing own puzzlement or confusion 		