

Cognitive Development of Pre-service EFL Teacher in the Context of Curriculum Practice:

-- A Case Study based on Activity Theory

Yufei Zhao

National Research Centre for Foreign Language Education, Beijing Foreign Studies University,
Beijing 100089, China

Abstract

Teacher cognition is the combined reflection of teachers' inner thinking, which affects numerous aspects of teachers' learning and classroom practice. This study used a qualitative case study method to investigate the cognitive development of a pre-service English language teacher at graduate level in a research course on foreign language teaching and learning overlooking the factors influencing it. It was found that pre-service teacher's cognitive development was influenced by the interaction of multiple factors including subject, tools and socio-cultural context. Among them, the learning course provided the theoretical foundation for the cognitive development of pre-service teachers and helped them to deepen their understanding of teachers' identity. The supervisor provided the necessary support and help for their professional development, facilitating the transformation of pre-service teachers' cognitive development from theory to practice. The past language learning experiences provided concrete examples for the cognitive development of pre-service teachers and helped them to build their teaching belief. Furthermore, emotional factors and conflict events are important forces to promote the cognitive development of pre-service teachers.

Keywords

Teacher Cognition; Teacher Professional Development; Pre-Service Teacher.

1. Introduction

Pre-service teachers, as the emerging force of the teaching force, are the source of the development of China's teaching force. With the vigorous development of the Belt and Road Initiative, global integration and other policies, China's demand for foreign language talents continues to strengthen. At present, researches related to foreign language teachers' cognition have paid more attention to teacher literacy [1], teacher identity [2], teachers' practical knowledge[3] and teachers' emotional experience [4] and so on. The academic community has paid less attention to pre-service teachers' cognition, especially the development of pre-service teachers' cognition in the process of learning and teaching practicing in school. Therefore, this paper intends to explore the process of pre-service English teacher's participation in theoretical learning and teaching practice in the foreign language teaching and learning research course, and to explore the development of their teacher cognition and the factors influencing it, with a view to providing teacher cognition promotion initiatives for foreign language teacher training.

2. Literature Review

Teacher cognition refers to what teachers think, know and believe [5] and has a profound impact on their teaching behavior. Academic research on teacher cognition has focused on the

study of teacher knowledge[6, 7, 8], the study of teacher reflection [9, 10] , and the study of the stages of teacher career development [11].

2.1. Pre-service Teacher's Cognition

Research on pre-service teachers' cognitive development has focused on pre-service teachers' language learning experiences, language teaching beliefs, perceptions of teaching practices, and pre-service teachers' decision-making behaviors and practical knowledge in teaching [12]. Ma and Luo explored the perceptions of Chinese pre-service English language teachers about the integration of critical thinking into English language teaching, and pointed out that the pre-service teachers were able to understand the meaning of critical thinking as one of the main teaching goals and were willing to integrate it into foreign language teaching to a certain extent, and that pre-service teachers are able to understand the meaning of critical thinking to some extent, regarding it as one of the main teaching goals and are willing to integrate it into foreign language teaching[13]. Meanwhile, pre-service teachers' perceptions were also influenced by social and cultural factors such as prior learning experiences, traditional Chinese culture, values, and curriculum documents.

The development of pre-service teachers' cognition, as a psychological dimension, undergoes an in-depth and slow process of change from the inside to the outside, and its development is also influenced by multiple factors from both internal and external sources. First of all, as far as external factors are concerned, teaching internships and teaching practice provide hands-on opportunities for pre-service teachers, which are considered to be important factors contributing to the transformation of their teacher cognition. Pre-service teachers' behaviors and decisions in teaching practice are also the focus of researchers. Through the performance of pre-service teachers in micro-teaching, the researcher explored the influence of pre-service teachers' teaching philosophies on their teaching practices[14]. Worden analyzed the platitude-based learning trajectories of two pre-service teachers in a small group teaching program. The results showed that through the learning processes of content learning, expert mediation, and self-reflection, the learners not only deepened their understanding of specific concepts, but also deepened their understanding of macro-teaching[15]. Yuan & Lee on the other hand, focused on the cognitive shifts of the three pre-service teachers during the ten-week teaching practicum through the processes of self-reflection, learning by shadowing, and teaching practice[16]. The pre-service teachers' teaching cognition changed through the process of confirmation, realization, clarification, divergence, and integration and adjustment. Other studies have focused on the cognitive, affective and motivational development of pre-service teachers in the context of teaching practice with the support of their mentors. During the teaching placement, the mentor and the pre-service teacher worked together to document in the form of a folder, transferring knowledge in coaching and guiding the pre-service teacher to achieve outputs [17]. From the above studies, it is clear that teaching practice is an important context for the development of pre-service teachers. Pre-service teachers' experiences in real classrooms can deepen their understanding of teaching and learning, validate their a priori knowledge, and gradually develop their own teaching philosophy.

Secondly, from an internal perspective, pre-service teachers' personal emotional experiences also have a significant impact on their perceptions of being a teacher. Yang focused on 31 Australian secondary school pre-service teachers and collected data from questionnaires, interviews, and self-explanations of emotions before and after their teaching practice, and the results showed that positive emotions were more important in promoting thinking and action. The study noted that emotions and cognition are intertwined and that the greatest influence on the emotional experiences of pre-service teachers is their students and mentors[18]. Borrachero et al. focused on the influence of affective factors on pre-service secondary school teachers of different genders, with male teachers showing more positive emotions than female

teachers, and pre-service teachers showing more positive emotions than negative emotions overall[19]. In Bhukhanwala et al. study, the school organized teaching workshops in the form of drama to help the pre-service teachers to ventilate their lived experience and overcome the difficulties in their teaching practice with the help of self-reflection and mentor teachers[20].

2.2. Activity Theory

Activity theory proposes that individual activities are culturally mediated by symbols and are inherently goal-oriented. The concept of activity already implies a goal, and there is no such thing as an activity without a purpose [21]. The unit of analysis of the four generations of activity systems of the Helsinki School is summarized as culturally mediated activities, individual goal-oriented activity systems influenced by tools and rules, two or more activity systems linked by a common goal, and complex multilayered, interdepartmental, and inter-organizational activity system complexes for solving complex humanistic and societal problems [22]. Pre-service teachers' cognition, as a potential psychological phenomenon, is bound to have an intrinsic effect on pre-service teachers through the joint action of internal and external factors, and then show significant changes through external behaviors such as teaching practices. Therefore, the key elements of the activity system, such as subject, object, tool, rule, community, division of labor, and result, can highlight the environment in which the cognitive development of pre-service teachers takes place, and thus show the inner change process in depth.

In general, most research on pre-service teachers' perceptions has adopted a phenomenological approach, exploring the changes in pre-service teachers' perceptions and knowledge in the course of their teaching practice, and focusing on factors such as key others and internal emotions that have a significant impact on them. However, there is a lack of in-depth tracking studies of pre-service teachers, as evidenced by the current academic research, and most of the studies adopted an interpretive approach, with immediate rather than generative interpretations of the data collected. In this study, a semester-long in-depth observation of a pre-service teacher's cognitive development was conducted in order to comprehensively present the cognitive development of the pre-service teacher and the mechanism of interaction of the influencing factors through interview data, classroom observation, self-reflection, and other data, and through the use of activity-based system analysis. Based on the above literature review, this study intends to answer the following research questions:

- (1) Have pre-service teachers' teacher cognition changed as a result of their participation in the program's practices? If so, in what specific ways?
- (2) What factors influence the cognitive development of pre-service teachers? How do these factors work?

3. Research Design

This study used an episodic case study methodology, which expects an in-depth exploration of one or more cases to facilitate an understanding of the complexity of the relationship between individual experiences, behaviors, and contexts [23]. The purpose of this study was to explore the cognitive development of pre-service English language teachers by tracking and observing a pre-service English language teacher's process of learning to practice foreign language teaching during a semester-long foreign language teaching research course.

3.1. Background of the Study

The research field of this study was a 16-week, 2-lesson per week master's degree course, Research on Foreign Language Teaching, in the Foreign Language Linguistics and Applied Linguistics program of a language university in Beijing (later referred to as University B), in which the main working language was English. Before the course began, the instructor sent

students a detailed syllabus, which indicated the schedule of lectures for each class as well as the readings that students needed to complete before class. The course was assessed in three parts, including six course assignments (60%), a final course design assignment (25%), and usual class participation (15%). A significant component of class participation includes a course teaching practicum, which students are required to complete in small groups. The six course assignments focused on course design for English grammar, vocabulary, listening, speaking, reading, writing, and other specialized content according to the course schedule. The final assignment is to continue and deepen the group course design into a scholarly article.

3.2. Research Participants

Based on the principles of purposive sampling and convenience sampling, the researcher sent invitations to participate in the study to the students who took the course early in the program. After the initial contact, a relationship of mutual trust was established with Xiaoxin, and a final decision was made to invite Xiaoxin as a participant in this study, and an informed consent form was sent to him, spelling out in detail the rights and obligations of participation in the study. Xiaoxin is from a non-capital city in a province in northern China. She majored in English Language and Literature in a language university in Beijing, and was guaranteed admission to graduate school at University B when she was promoted to the next level in her senior year. During her undergraduate studies, she passed the Band 8 Test for English Major, which is a high-stake test for English majored students, and her language ability is at an advanced level of flexible use. During her undergraduate years, Xiaoxin’s university focused more on theoretical linguistics and less on applied linguistics. Because of the lack of applied practice and her interest in foreign language teaching, Xiaoxin chose to study Applied Linguistics at University B, hoping to explore the field of foreign language education from both theory and practice.

3.3. Data Collection

In order to ensure the smooth implementation of classroom teaching practice, the students who took the Research in Foreign Language Teaching course were freely grouped, resulting in a total of five groups. This study focused on one of them, Xiaoxin (meaning freshman), a female master’s degree student in Applied Linguistics, and focused on her cognitive development as a teacher throughout the semester, using semi-structured interviews as the main form of data collection. At the same time, the author also collected materials related to her six course assignments, teaching reflections, and final coursework during the semester as supplementary materials, see [Table 1](#). The data for this study originated from a naturalistic teaching environment. The names of the participants are pseudonyms to respect her privacy.

Table 1. List of data collection

Data type	Data sources
Personal Interviews	3 semi-structured interviews at the beginning, middle and end of the semester (total length: 4 hours and 21 minutes, recorded on-site and audio-recorded throughout, 52,600 words transcribed)
Classroom Observation	2 non-participatory classroom observations (3.3 hours in total, recorded on-site and videotaped throughout)
factual information	Teaching and research materials (lesson plan design, teaching materials, etc.) Coursework (personal reflections, course assignments, course papers, etc.)

3.4. Data Analysis

In order to capture the specific manifestations of pre-service teachers’ cognitive development and their influencing factors, the researcher first transcribed the interview data of the study participants verbatim. Through repeated reading, the researcher conducted preliminary coding of the transcribed content of the interviews with the help of MAXQDA software, and thematic

coding [24] with the relevant elements of teachers' cognition and activity theories, with the following steps: 1) repeated detailed reading of the various types of texts, and open-ended coding of the key expressions related to the research questions; 2) annexing similar codes, and sublimation of thematic coding; and 3) further summarization of the thematic codes and correspond with the elements of Activity Theory. The coding scheme can see [Table 2](#). After the coding was completed, the researcher verified the coding classification by reading other auxiliary materials and invited researchers of the same specialty to cross-validate the codes.

Table 2. Typical examples of data encoding

Elements of Activity Theory	Subject code	Data sources
Subject	Sense of responsibility	Yeah, because I'm a person once I get that feeling on my back, I especially want to get it right. (Interview 230621)
Object (target)	Program design	And then (I) try to make it look better and more coherent in all parts, like a decent class. (Interview 230418)
Mediation	Finding Teaching Resources	I went on the internet to find readily available coursework, because this class doesn't just involve the English part, it also has STEM, which is a math thing. (Interview 230621)
Division of labor	Breakdown of tasks	In the beginning, we did set up a program, for example, we had Reading notes that were divided into a total of several sections and then everyone should take in charge of one section at a time. (Interview 230314)
Emotional Experience	Interest	Because I was so terrible in science. Yeah, but now when I think about it, I kind of regret it. I had a little bit of hesitation after I chose the major, and then I leaned a little bit towards science again. And I thought that at least in applied linguistics, it's not as theoretical, or as boring as pure linguistics. (Interview 230314)

4. Research Findings

It was found that Xiaoxin's teacher cognition experienced a gradual process of change from vague to clear and from abstract to concrete during her participation in the foreign language teaching research course and teaching practice: the specific performance can be divided into anticipation and hesitation in the preliminary period, struggle and honing in the medium-term, and up to aspiration and practical work in the end of semester. In this process, pre-service teacher's cognition is reflected in a more comprehensive understanding of teacher identity, a more in-depth mastery of subject teaching knowledge [25], and different degrees of changes in their emotions and behavioral motives. The courses and practices of the semester continued to deepen Xiaoxin's understanding of foreign language teachers and had a decision-making impact on her teaching practice.

4.1. Preliminary Period: Anticipation and Hesitation

At the beginning of the semester, Xiaoxin showed strong motivation for the course but lacked understanding of teaching and learning. Xiaoxin is a very enthusiastic language learner. In high school, she was a science student, but due to her lack of interest in science studies, she chose to major in English with a liberal arts orientation after the college entrance examination. During her undergraduate years, she chose to continue her master's degree in Foreign Linguistics and Applied Linguistics based on her interest in linguistics. Interest was one of the concepts she talked about a lot in the early stages of her engagement: in high school, it motivated her to choose to major in English even though it was against her father's wish. During graduate school, she again adjusted her target major based on her interest: "So then I went to graduate school

and I leaned towards the relatively science direction, thinking that at least in applied linguistics, it's not purely theoretical, not purely linguistic and it's not as boring" (Interview).

Positive emotions are more important for thinking and acting[26]. In the interview with Xiaoxin, "Whether I like it or not, whether I am interested in it or not" was a frequently mentioned emotion marker. As a pre-service teacher, Xiaoxin showed high interest and strong motivation, which she put into practice in her life and study. During her undergraduate years, Xiaoxin had participated in several language teaching internships and tutoring activities based on her interest, which provided her with some relevant experience in classroom teaching in her later years. Her high motivation for learning encouraged her to spontaneously use various mediating tools to carry out her study and research during her graduate studies, including reading materials provided by her supervisor and learning related research software, etc.: "I think I learned very little about statistics to deal with data, and then my ability was not good either. For coding and stuff, you can watch a video to learn it." (Interview).

"Course work is basically done with the help of reading material. I would love for the teacher's HANDOUT to be sent out a little earlier, if she would send it out on Monday afternoon like she did last week, I would be able to type it out and go over it at night, and then the next day's class would go really well for studying." (Interview).

At the beginning of the semester, Xiaoxin still maintained a relatively naive student identity, with a longing and expectation for teacher identity and teaching practice, but lacked in-depth understanding, so she chose to participate in the Research on Teaching Foreign Languages course, expecting to gain a deeper understanding of foreign language teaching through the course's study and practice (Reflection). The above analysis shows that Xiaoxin, as a pre-service teacher, has sufficient motivation to learn, but the lack of theoretical learning and teaching practice is a limitation to the in-depth development of her teacher cognition.

4.2. Mid-term: Struggles and Trials

In the course of the program, Xiaoxin's subject teaching knowledge was continuously enriched, and her knowledge of teaching practice was further practiced through the practicum, and her perception of teachers gradually moved from an ideal form to a realistic image. In the process of preparing practicum, Xiaoxin and her peers encountered the dilemma of transforming theoretical knowledge into teaching practice. Despite their internal struggles, Xiaoxin and her peers continued to enrich their teaching knowledge and actively transform what they learned into what they taught by obtaining support and assistance from their instructors.

Upon entering the course, each group submitted an instructional design according to the schedule of lectures: a lesson design around grammar, vocabulary, listening, speaking, reading and writing, and a practicum on one of the topics. The practicum is one of the most challenging activities in the semester. For Xiaoxin, it was her first classroom experience as a teacher. During the practicum preparation, Xiaoxin and her peers held several rounds of discussions, actively tried to apply the teaching concepts learned in the course to the design of the course in accordance with her own teaching interests, and maximized the use of existing teaching materials.

"At that time, my companion and I were supposed to have read all the textbooks. We basically went through them all and then picked out some units related to environmental protection, including some units in the compulsory part that were also related. However, since this is an oral class, we tried to find some relevant oral activities in the book, but in the end, we only found a role-playing activity in the optional stage. And even though the textbook consisted of this activity, it was still too short and not quite what we expected." (Interview).

In the process of course design and preparation, the biggest difficulty faced by Xiaoxin and her peers was how to design the teaching process. For novice teachers, they had innovative ideas about teaching design, but they had difficulties in organizing the teaching process. At the same

time, they had limited knowledge and faced difficulties in the articulation of the teaching process and the use of directives.

"We didn't start out trying to directly replicate the textbook's mini-activities. Because the activities in the textbook are very limited, they basically just provide students with a basic idea, but they don't expand on it. So we very much wanted to expand on that activity. At the same time, the activities in the textbook do not give enough indications to support classroom discourse, which is the same as saying that there is not a complete oral session in the book." (Interview).

The instructor of the course provided significant assistance to Xiaoxin and her peers in the design of the course during the preparation of the teaching practicum. Through trial sessions and discussions with the instructor, Xiaoxin and her partner almost completely redesigned the trial course. In the original instructional design, the course content basically centered on the textbook, but the textbook design differed from the group's ideas, making it difficult to fully satisfy their instructional goals. Therefore, with the encouragement of the instructor, Xiaoxin and her peers chose a thematic approach to teaching and redesigned the content of the lesson, adding their own design to the activities in the textbook.

In terms of activity design, Xiaoxin and her peers have been able to design their lessons accordingly to fit the students' needs. They originally hoped to design debate activities for oral output, but considering the language level of the target students, they finally chose to design drama activities for small theaters.

"In the first edition, we actually thought a lot about each activity including the articulation in the middle, and we were also considering whether they (the target students) would be able to pick it up, just like we said in the lesson talk. But in the real lesson, it was really hard to do the articulation of each link. The first time we went to the instructor to do a trial lesson, it also appeared to be particularly difficult." (Interview).

Novice teachers tend to project the behaviors of experienced teachers in their practice and incorporate what they have learned in teaching situations and what they have learned in school [27]. During the trial presentation, the mentor teacher also provided precise guidance on various aspects of group teaching, which illuminated the direction of improvement for Xiaoxin's teaching practice. At the same time, Xiaoxin and her peers also actively searched for teaching resources such as open classes from the Internet to learn the curriculum design and classroom phrases of experienced teachers.

"During the audition, we were supposed to have the material organized by then. But the articulation of the various segments was still rather abrupt, as if you suddenly had to do the listening, and the turn took an unnatural turn. Then we thought about how to connect them The problem with vocabulary was that the teacher reminded us not to try to teach the students something, but to get them inspired to think about vocabulary knowledge." (Interview).

The above analysis shows that in the process of preparing for teaching practice, Xiaoxin's understanding of teaching has moved from abstract to concrete, and she has established a framework of understanding the teaching practice, and her teaching ability has been honed to a certain extent in practice. In this process, Xiaoxin and her peers fully seized the existing teaching resources and actively tried to apply the teaching knowledge learned in the foreign language teaching research classroom to actual teaching.

4.3. End of Semester: Aspiration and Practice

After a semester of study in the Foreign Language Teaching and Learning Research Course, Xiaoxin's perception of teacher has gradually deepened and become more comprehensive, and she has become more aware of her status as a teacher. On the basis of her understanding of systematic teaching theories, Xiaoxin actively tried to apply teaching theories in practice, and her interest in teaching became stronger and she was ready to carry out relevant teaching

internships during the summer vacation. Specifically, she has basically mastered the overall design process of a language course, familiarized herself with the various teaching links and articulations, and is eager to continue her teaching practice. This semester's lessons and practice have potentially influenced her future career choices.

"At the beginning of the semester, I was actually more ideal for a career in the civil service, and was hoping to graduate and go home to work in a related field. But in this vacation, I got an internship in language training part at an Internet company, and I'm still really looking forward to trying to put these teaching theories to use." (Interview).

In addition to a strengthened interest in teaching practice, Xiaoxin's motivation for scholarly research increased significantly through the semester. She was eager to participate in research and to address the content of her teaching practice.

The above analysis shows that through one semester's study, Xiaoxin's motivation for learning and research has been strengthened, and she is full of enthusiasm for teaching practice and has made positive attempts through internships and competitions. At this stage, Xiaoxin's teacher cognition is gradually materialized, and it stimulates her motivation to teach and practice.

5. Discussion

Teacher cognition mainly consists of what the teacher thinks, knows and believes [28]. In one semester's study and practice, pre-service teacher Xiaoxin has undergone significant changes in these aspects. Specifically, she had a deeper understanding of teaching and learning, a more comprehensive grasp of teaching theories, and actively applied theories to practice. As mentioned in Ma and Luo's study, the influencing factors of pre-service teachers' cognitive change can be summarized in three aspects: subjective influence, social environment influence and instrumental influence[29]. In this study, Xiaoxin's teacher cognition was also influenced by the subjective influence of teachers, classmates, and peers; the socio-cultural environment in the context of study, life, and internship; and the instrumental influence of teaching materials, literature, and textbooks. In addition, Xiaoxin's own affective factors are also important factors contributing to the changes in her teacher perceptions, as manifested in her interest-based decision-making behavior and motivational stimulation under peer pressure.

Combined with the context of the Foreign Language Teaching and Research Course, Xiaoxin's activity system presents a dynamic process of change driven by goals and multiple factors. Xiaoxin, as the subject factor, opened the English major out of enthusiasm and interest. Her subjective drive was at a high level when she entered the foreign language teaching research course. With the theoretical study as well as the teaching practice, Xiaoxin experienced the division of labor and co-learning in a community setting during the process of preparing the teaching practice tasks with her group peers, combined with the integrated role of tutor coaching, instructional materials, teaching theories, and other mediating tools, and finally accomplished the core events of the group teaching practice. Throughout the semester, small group teaching practicum was the primary goal, the object of practice, that drove Xiaoxin's learning and exploration. Around this core event, Xiaoxin actively engaged in a series of activities with her group peers, such as data retrieval and instructional design. In this process, course content, pedagogical theories, and mentor coaching were the primary mediating tools for Xiaoxin to transform her teaching practice.

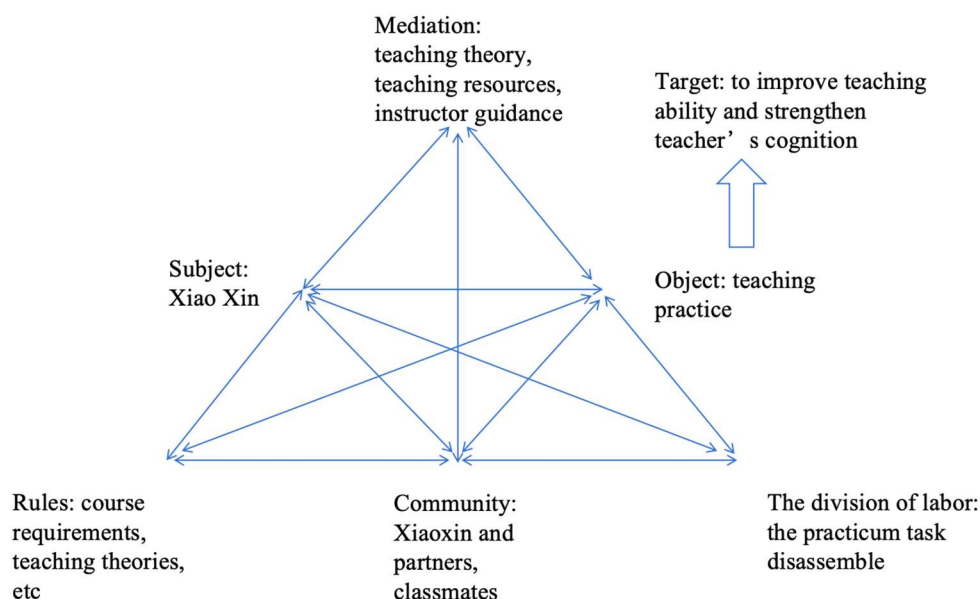


Fig. 1 Xiaoxin's Activity System

First, in terms of course work, the course provides a theoretical foundation for pre-service teachers' cognitive development. The course encompasses classic theories and cutting-edge literature on language teaching and learning. Through pre-course reading and in-class lectures, pre-service teachers are able to enrich their theoretical knowledge through the program. At the same time, the course emphasizes the combination of theory and practice, and the instructor used classroom videos and other audio-visual resources as teaching aids, providing pre-service teachers with multi-dimensional learning resources. For pre-service teachers, the learning of theoretical knowledge is the cornerstone of their professional development, and the systematic and progressive course is conducive to the construction of their teacher identity, in-depth understanding of the role of teachers, and comprehensive expansion of their teaching understanding.

Secondly, the mentor teachers provided necessary guidance and assistance to the pre-service teachers in the course of their lectures and teaching practice, which was an important intermediary in promoting the teachers' cognitive consolidation and development. In the course, the instructor adopted a sub-thematic teaching design, focusing on grammar, vocabulary, listening, speaking, reading, writing and other language teaching contents. Through the various types of language courses, pre-service teachers were able to construct a complete language teaching system and further deepen their understanding of theoretical knowledge. Instructors can provide pre-service teachers with teaching examples, so that they can understand the actual operation of teaching, learn teaching methods, and perceive students' needs [30]. At the same time, through course design and teaching practice, pre-service teachers initially try to combine theoretical knowledge with practical teaching. In the whole process, the instructor helped the pre-service teachers to clarify the practical problems they encounter in theoretical understanding and classroom teaching through trial lectures and classroom lectures, help them to establish their own teaching style, pay attention to the unforeseen difficulties in teaching and try to solve them. Through teaching practice, the pre-service teachers go into the classroom and try to take on the role of a lecturer, gradually establishing their own teaching beliefs through practice.

Once again, pre-service teachers' past language learning experiences are an important influence on their cognitive development as teachers. Past experiences include both their learning experiences as students and their observation experiences as pre-service teachers. As students, the pre-service teachers had been language learners themselves for many years and had established thinking and understanding about language learning. As teachers, they have received professional guidance and learning, and have continued to learn from the teaching methods and thinking of experienced teachers in the classroom [31]. It can be said that every classroom learning they have participated in in the past is an important resource for pre-service teachers' learning, helping them to gradually build up their understanding of their identity as teachers and deepen their understanding of teaching skills.

Finally, affective factors are also relevant to the cognitive development of pre-service teachers and have received increasing scholarly attention in recent years. Factors such as emotions, feelings and moods encountered by pre-service teachers in the process of learning and practicing have a greater impact on their cognitive development as teachers. Dramatic events or conflicts are an important part of the developmental process, especially the construction and development of cognition in the process of the subject's resolution of dilemmas [32]. For pre-service teachers, they are faced with the challenge of transforming from theory to practice, and the lack of teaching experience, false expectations of students, and peer comparisons have a continuous impact on their moods and emotions. Successful resolution of these issues requires pre-service teachers to act on their own initiative and actively seek both theoretical and practical help. Emotional factors can be seen as moderators of pre-service teachers' cognitive development, which can be either facilitating or hindering, and need to be internalized by the pre-service teachers themselves.

6. Conclusion

This study presents a case study of a pre-service English teacher's process of constructing her teacher cognition, focusing on the development of her teacher cognition and its influencing factors. This study found that the pre-service teacher cognition developed from hesitation and longing in the early stage to firmness and practicality in the later stage. In this process, pre-service teacher's cognitive understanding gradually deepened and gradually constructed their own teaching beliefs. Among them, course learning, instructors, past experiences, and emotional factors provide theoretical foundations, practical guidance, real-life examples, and a certain amount of promotion or hindrance to the cognitive development of pre-service teachers. The main role of these events and subjects is to help pre-service teachers build their own understanding of teacher identity and contribute to their professional development. These factors do not necessarily cause cognitive development, but may trigger cognitive changes in pre-service teachers, resulting in changes in their understanding and behavior. Based on the findings of this study, the training of pre-service teachers should pay more attention to the process of transforming theory into practice, actively practicing pre-service teachers' teaching skills, consolidating the development of their teaching beliefs, and providing timely support and assistance. The pre-service teacher training system should be composed of the government, universities, research institutes and primary or secondary schools, to provide pre-service teachers with more opportunities for practice, to create an integrated teacher education in teaching and research, and to help pre-service teachers develop their professional competence through awareness, understanding, and internalization.

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References

- [1] C. Lai, B. Lu and Y. Gong: A Framework for Teachers' Digital Literacy in the Design of Foreign Language Teaching Activities, *Foreign Language World*, Vol.03 (2023), p.31-38.
- [2] Z. Bu and Y. Wu: A Study of Critical Metaphors in the Construction of College Foreign Language teachers' identity: An Analysis of the Essays from the "Foreign Language Education Press Cup" National College Foreign Language Teaching Competiti;on, *Journal of Foreign Language Institute of PLA*, Vol.02 (2022), p.34-42.
- [3] Q. Zhang: The Qualitative Analysis of University Foreign Language Teachers' Practical Knowledge of Course Ideology and Politics, *Foreign Languages Research*, Vol. 03 (2022), p.58-63.
- [4] L. Zhang and D. Zuo: A Study on the Adjustment of College Foreign Language Teachers' Past Emotional Experience to the Construction of Professional Identity from the Narrative Perspective, *Foreign Language Research*, Vol. 01 (2023).
- [5] S. Borg: *Teacher Cognition and Language Education: Research and Practice* (Continuum, US 2006).
- [6] L. Shulman: Knowledge and teaching: Foundations of the new reform, *Harvard Educational Review*, Vol. 57 (1987) No.1, p.1-22.
- [7] F. Elbaz: *Teacher Thinking: A Study of Practical Knowledge*. (Croom Helm, UK 1983).
- [8] P.L. Grossman: *The Making of a Teacher: Teacher Knowledge and Teacher Education*. (Teachers College Press, US 1990).
- [9] D.A. Schon: *The Reflective Practitioner: How Professionals Think in Action*. (Basic Books, US 1983).
- [10] M.J. Wallace: *Training Foreign Language Teachers: A Reflective Approach*. (Cambridge University Press, UK 1991).
- [11] C. Watson: Narratives of practice and the construction of identity in teaching, *Teachers and Teaching: Theory and Practice*, Vol.12 (2006) No.5, p.509-526.
- [12] S. Borg: *Teacher Cognition and Language Education: Research and Practice* (Continuum, US 2006).
- [13] L. Ma and H. Luo: Chinese pre-service teachers' cognitions about cultivating critical thinking in teaching English as a foreign language, *Asia Pacific Journal of Education*, Vol.41 (2021) No.3, p.543–557.
- [14] B.L. Reynolds, X.V. Ha, C. Ding, X. Zhang, S. Liu and X. Ma: Pre-Service Teachers Learning to Teach English to Very Young Learners in Macau: Do Beliefs Trump Practice?, *Behavioral Sciences*, Vol.12 (2022) No.2, p.19.
- [15] D. Worden: Developing writing concepts for teaching purposes: pre-service L2 writing teachers' developing conceptual understanding of parallelism, *Journal of Second Language Writing*, Vol.30 (2015), p.19–30.
- [16] R. Yuan and I. Lee: Pre-service teachers' changing beliefs in the teaching practicum: Three cases in an EFL context, *System*, Vol.44 (2014), p.1–12.
- [17] E. Ončevska Ager and M. Wyatt: Supporting a pre-service English language teacher's self-determined development, *Teaching and Teacher Education*, Vol.78 (2019), p.106–116.
- [18] H. Yang: The nexus between pre-service teachers' emotional experience and cognition during professional experience, *The Australian Educational Researcher*, Vol.46 (2019) No.5, p.799–825.
- [19] A.B. Borrachero, M. Brígido, L. Mellado, E. Costillo and V. Mellado: Emotions in prospective secondary teachers when teaching science content, distinguishing by gender, *Research in Science & Technological Education*, Vol.32 (2014) No.2, p.182–215.

- [20] F. Bhukhanwala, K. Dean and M. Troyer: Beyond the student teaching seminar: Examining transformative learning through arts-based approaches, *Teachers and Teaching*, Vol.23 (2017) No.5, p.611–630.
- [21] A.N. Leontev: *Activity, Consciousness, and Personality* (Prentice-Hall, US 1978).
- [22] A. Sannino and Y. Engeström: Cultural-historical activity theory: Founding insights and new challenges, *Cultural-Historical Psychology*, Vol.14 (2018) No.3, p.43–56.
- [23] R.K. Yin: *Case Study Research and Applications : Design and Methods* (Sage, US 2018).
- [24] J. Saldaña: *The Coding Manual for Qualitative Researchers* (SAGE Publications Ltd, UK 2009).
- [25] A. Baker: Exploring Teachers' Knowledge of Second Language Pronunciation Techniques: Teacher Cognitions, Observed Classroom Practices, and Student Perceptions, *TESOL Quarterly*, Vol. 48 (2014), p.136–163.
- [26] H. Yang: The nexus between pre-service teachers' emotional experience and cognition during professional experience, *The Australian Educational Researcher*, Vol.46 (2019) No.5, p.799–825.
- [27] L.D.A.D. Rodrigues, E. De Pietri, H.S. Sanchez and K. Kuchah: The role of experienced teachers in the development of pre-service language teachers' professional identity: Revisiting school memories and constructing future teacher selves, *International Journal of Educational Research*, Vol.88 (2018), p.146–155.
- [28] S. Borg: *Teacher Cognition and Language Education: Research and Practice* (Continuum, US 2006).
- [29] L. Ma and H. Luo: Chinese pre-service teachers' cognitions about cultivating critical thinking in teaching English as a foreign language, *Asia Pacific Journal of Education*, Vol.41 (2021) No.3, p.543–557.
- [30] A. Malderez: *The Cambridge guide to second language teacher education* (Cambridge University Press, US 2009).
- [31] X.S. Gao and P. Benson: “Unruly pupils” in pre-service English language teachers' teaching practicum experiences, *Journal of Education for Teaching: International Research and Pedagogy*, Vol.38 (2012) No.2, p.127–140.
- [32] N. Veresov: *Perezhivanie, emotions and subjectivity: Advancing Vygotsky's legacy* (Springer, Singapore 2017).