

Teacher's Self-concept Change from Complex Dynamic Theory during a Practicum

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Abstract: *Teacher's self-concept is developed from inner and it is gradually formed and developed. However, the practicum is an important link between pre-service education and post-service practice. In order to realize the integration of pre-service and post-service education, this study focused on the Complex Dynamic System Theory, which is an important theory to research teacher's recognition, to analyze how the self-concept is changed during the practicum. "Intervention", as a core concept of the theory, will influence pre-service teacher's concepts. This study was expected to be carried out in a middle school in Jiaozuo. A case study was needed in this research for six months and one participant was invited, who had finished the related courses without teaching experience. She was willing to write diaries and loves teaching. 30 diaries and one internship summary of a pre-service teacher were conducted and analyzed by the means of the grounded theory method. Besides, the pre-service teacher was interviewed as a supplement, which could provide the study with more details about the internship. Summing up and recording was also crucial if necessary. According to this study, it is suggested that the pre-service teacher's self-concept had complex dynamic changes in three aspects of self-concept. Intervention can be triggered by the following: significant persons, critical events, and social relationships.*

Keywords: *case study, identity, pre-service teacher, complex dynamic system*

1. Introduction

Professional identity plays a crucial part in a teacher's inner-self development, which influences directly how to be a teacher and mainly involves the teacher's decision-making, professional behavior and self-development. Practicum, as the initial stage of teachers' professional development, is an important link between pre-service education and post-service practice, and also a critical period for the formation of teachers' professional self-development consciousness. Because a teacher's identity is multiple and dynamic change^[1], the inner dynamics of teacher identity transformations remain a "black box"^[2]. In order to examine the development of a pre-service teacher's identity, the present study focuses on shifts between identities that happen at day-to-day at a real-time level^[3].

Based on the related studies at home and abroad, teacher's identity changes dynamically and apparently during the practicum. However, little attention has been paid to the teacher's dynamic change. This study aims to explore the formation and development of an English teacher's professional identity so as to better realize the integration of pre-service and post-service education, to improve the pre-service teacher education and to promote the reform of basic English curriculum in colleges and universities. Drawing on the complexity and dialogical conceptions, there were two research questions that were studied in this study. 1) How does the pre-service teacher's self-concept change during practicum? 2) How are the self-concept changes triggered?

2. Related research at home and abroad

Complex Dynamic Systems Theory (CDST hereafter) was first applied in second language education by Larsen Freeman (2012)^[4], which has been studied in the field of teacher's identity and learning as well as English learner's oral language development and second language (L2) motivation. Recent studies on CDST have been focused on teacher's education. For example, bringing CDST to the study of the teacher's identity during practicum, Henry (2016) had analyzed oscillations between two identity positions across three timescales^[5]. The chaotic and non-linear changes of a teacher's cognition and identity with "intervention" that was proposed by Hiver (2015) led to the complexity and

dynamics of identity development^[6]. Furthermore, an illustrative empirical case conducted by Garner & Kaplan (2018) had an effect on teacher's learning and identity change to give an emphasis on the utility of complexity among a teacher's unique role identity^[7]. In the field of foreign language learners, relevant studies have been conducted to discuss the oral English development and L2 motivation change. By means of mathematical theory with an experiment and a questionnaire survey, Qiang Dou et al. (2021) lasted six months to investigate and conclude the attitude of college oral English learners to prove a nonlinear development pattern of oral English learning^[8]. In addition, based on CDST, with a multilevel modelling technique or individual growth curve modelling (IGC Modelling), the general complexity and subordination had been explored in oral development so as to provide better oral practice in foreign language learning^[9]. From the perspective of CDST, Dai Yuncai and Yu Hanjing (2022) chose 110 English major participants on a retrospective study with a cluster analysis, which had faced to be a non-linear characteristic of second language learning motivation. The internal and external factors were interactive and coefficient to reveal the influence of oral English development in light of CDST^[10].

3. Theoretical foundation

Complex dynamic system theory (CDST hereafter) refers to a theory which is used to describe, explain and predict the changes of various elements in a system, the interaction between elements, the change of system trajectory and the relationship between a system and other systems. This theory is closely related to chaos/complexity theory, emergentism, complex adaptive system. CDST originates from classical mechanics, and then it is widely used in the following fields such as mathematics, physics, biology, meteorology, and oceanography. Until the end of the 20th century, experts and scholars began to bring CDST into applied linguistics. In 1997, Larsen Freeman first advocated applying CDST to the second language acquisition (SLA hereafter) field through the article named Chaos/Complexity Science and Second Language Acquisition.

The most significant contribution to SLA research made by CDST is that it provides a framework which manages to combine social level with cognitive level. It is the interaction between the two levels that leads to language development. The CDST distinguishes from traditional theories in a number of important respects^[11]. First of all, traditional theories are accustomed to viewing SLA or FLT from a singular cause-effect perspective. However, CDST believes that no single element or force causes change, thus, correlation or non-linearity is the fundamental feature of the system. Therefore, it is suitable for elaborating teacher motivation in that teacher motivation is a complex phenomenon that does not work on one level alone. Secondly, the CDST suggests us treating things from a dynamic perspective, not a static perspective. For some researchers, they show a concern for what is going on in the individual and how that changes over time. Periods of stability may be reached, but motivation undeniably changes, sometimes often and certainly over time. The CDST allows researchers in motivation to explore individual's motivational dynamics across different timescales. Thirdly, the CDST views system as open and adaptive. The system is not closed but it is open to outside influences and interacts with its environment.

In summary, CDST does not remain passive in light of changing events and they adapt to an ever-changing environment. Therefore, the present study of motivational dynamics of L2 from a CDST perspective can offer important insights into the study of teaching motivation in a sense because both the two are individual psychological factors by nature. By means of CDST, the author conducted a case study to explore the key factors influenced pre-service teachers' motivation.

4. Methods and materials

4.1 A case study

A longitudinal case study is employed in this study so as to get a deep exploration of the dynamic complexity between personal experience and behavior change within its contexts^[12]. An up-close uncovering of the particularities can be studied from a case study. According to Van Rijswijk et al. (2013), little attention has been paid to the formation and development of inner dynamics of a teacher's identity^[2]. By means of a case study, it can generate insights of dynamics systems so that the relevant researcher can develop a good relationship with the participant and that true feelings and standpoints can be easily put forward as a data basis.

4.2 The participant

The participant is a postgraduate student in Grade Two, who has finished the related courses in the first year of the postgraduate courses. She was an English major student and studied English for 4 years during her college year. Being admitted to a graduate school in her senior year, she did not obtain any teaching experience prior to this study. During her college year, she had spent many periods of time in English and gained top grades in all her previous courses. Being an English teacher has always been her dream. As an ambitious and conscientious student, she is willing to write diaries as a daily routine with good handwriting and cherishes the opportunity as a practicum to learn how to teach English and to put her theoretical knowledge that she had received in the school into practice in a middle school.

At the point when the practicum began the participant was at the beginning of the second semester in the postgraduate study. This practicum was carried out in a middle school in Jiaozuo. The students the participant taught from Grade 8 are of a similar age and many of them have a high level of English so that the impact of environment can be reduced at great length. The practicum lasted for a semester from March to July. During that period, the participant saw and learned from others' teaching classes for 15 days and then taught English by herself. Whenever facing difficulties, she can consult her school mentor and other middle school teachers.

4.3 Data collection and analysis

The data was collected from the pre-service teacher's diaries and a summary of practicum (10000 words). These diaries could provide insights into the participant's teaching cognition, experiences and important events that could change her professional identity. Besides, the data could also reveal the dynamics of a pre-service teacher's identity. By means of the grounded theory method, diaries and the summary were coded, classified and concluded into different main themes.

To reveal more subtle dynamics of implicit meanings and positionings [13], interviewing the participant with video-recordings was crucial as a supplement to get more details within and without the practicum. The interview was conducted in the participant's first language for fifteen minutes twice a month. With a semi-structured interview, the pre-service is willing to explain and talk more about her professional cognition and experience. The audio files were transcribed verbatim to get the complete interview. An analytic induction process was exploited to analyze the data, then themes emerged through the recorded data.

5. Results

Diaries could be analyzed in two sections. The first section was to see and learn from others' teaching classes for 15 days. The second section was to teach English by herself until the end of the practicum. A semi-structured interview is needed during these two sections. Results showed that the participant identity's change was substantiated in her self-image, self-efficacy, job commitment, and satisfaction and perceptions of work.

5.1 Mental change

Psychological change refers to an individual's understanding of his or her own psychological attributes, such as psychological process, ability, character, emotion, etc., which belongs to self-consciousness and is the result of personality socialization. Teacher's psychological self is the premise of professional self and social development [14]. It can be revealed from internship diaries that the internship is such a process of development. Meanwhile, the internship diaries helped the participant to reflect and develop herself better.

5.1.1 Learning stage

At the learning stage, the participant went to the class to learn teachers how to teach English, and the uncertainty of her self-concept resulted in her inner anxiety and depression. As a result, because of lacking effective communication and waiting passively, her expectations did not match the reality. The participant wrote in her diary:

"I had been looking forward to going to class before I really came to the class, and I had been thinking about the scene how it could be when I stood on the platform." (summary)

“The instructor Li is the head of English teaching group, but she is quite busy teaching two classes and is the head teacher of a class. She did not care much about my things, so I had no chance to communicate with her in the first two days.” (interview)

“I had the bad luck of having an advisor who had no time for me. I was annoyed and even hateful. Hearing my classmates at my university talking about their learning experience in their practicum, I was very anxious about myself. I wondered whether it was time to change the school or change the instructor. I was confused and lost.” (diary)

The study found that the participant’s self-concept is unclear and confused during the learning stage in the first two weeks.

5.1.2 Practice stage

At this stage, problems from the first stage were solved constantly. The participant was more clear about what to do and communicated with others from passive to active. Self-concept was gradually changed from different perspectives, and her self-concept was constantly developed. The data reported to explore the participant’s internship diaries:

“The advisor gave me an advice... Try to improve, better and better, come on!” (diary)

“In short, I had to spend more time preparing for listening and speaking classes and practicing as much as I could. Don’t get discouraged, fighting!” (diary)

“The end of my practicum is approaching. I feel conflicted. On the one hand, I don’t want to end the internship, because there are still many things to learn. On the other hand, I hope it’s over because I’m starting to miss my university.” (summary)

In the interview, the participant recalled: “In fact, no matter how difficult it is, as long as you put your heart into it, you can do it well! I am no longer afraid of taking classes. On the contrary, I hope to have more opportunities to practice and make continuous progress. I believe opportunities are for those who are prepared.” (interview)

5.2 Professional self

Professional self is an important part of teacher’s self-concept, including the teacher’s subject knowledge, curriculum knowledge, teaching contents and skills, which determines the direction of teacher’s professional independent development. During her internship, she met many other English teachers and experienced many events such as classroom teaching and class management. In interaction with people and things, the participant gradually has a clear understanding of her self-concept. These are considered “Intervention” of typical events, such as advisor feedback, expert comments, and communication between colleagues.

5.2.1 Significant persons

The participant met many significant persons, including Miss Wang, Miss Lu, Miss Li, etc. during the practicum. She developed her own teaching concepts and thoughts from which she interacted with those teachers daily with an open mind and a positive attitude.

On the first day of the internship, the participant listened to Mr. Wang’s class and gave her a certain influence in terms of subject knowledge. “During the internship, I tried to learn as much knowledge and experience as possible. When I listened to the class, I should first learn how to begin. In addition, I should know and be familiar with the textbook, and clear each unit’s topic respectively...” (diary)

Miss Li was the first teacher to give the participant a chance to teach, therefore she had did much influence on the participant’s self-concept change. As a result, the participant could not only face the problem of her professional self in reality, but also affect her ideal self. Happy mood and grateful feelings could be investigated in her diary: “The first day listened to the teacher Li’s class, and the second day followed her to the second grade... It will be nice to go to her class again tomorrow! She took the exam and became a formal teacher ten years ago, so I want to communicate with her more to get some information about the teaching skills and classroom management. She made a deep impression on me with high grades in her recruitment exam and the teacher certificate exam. I think I should be like her! My goal is clear right now that it is crucial for me to practice my English pronunciation and intonation well so as to make up for it as soon as possible.” (diary)

The advisor Li mainly helped the participant to take different lessons, namely learning the lesson

examples. It was very useful for the pre-service teacher to improve her teaching ability. “This is my third presentation of the same class. Having learned from Li’s advice, the third class went smoothly after many modifications and practices. The whole class was relaxing.” (interview) After many presentation and practices, the research pointed out that she had established a sense of inquiry and began to rationally analyze the reasons behind the success or failure of teaching through the surface. “This class usually did not have group or desk drills. They used to finish the task individually, so the pair work didn’t go well. It also made me realize that whether a teacher was good in class or not had something to do with the actual situation of the students.” (diary)

“Because I was lack of teaching experience, I failed my first presentation in Class 3. Miss Lu gave me another chance to take this lesson again, so I was really grateful for Miss Lu. By means of this chance, I practiced this lesson again in the same class, so it is just as the saying goes: ‘from where to fall, from where to climb up.’” (diary)

From the participant’s summary diary, it can be concluded that she treasured the teaching opportunity. After giving another chance, the pre-service teacher carefully prepared the lesson and repeatedly revised the PPT. She also asked a friend who was a teacher to comment on her teaching design and rehearsed it many times. After repeatedly revising, she was more confident. “In fact, no matter how difficult things, everything can be done well with your endless effort! I am no longer afraid of taking classes and hope to have more opportunities to practice them.” (summary)

5.2.2 Critical Events

Critical events refer to important events in personal life. In this study, critical events was a key word for pre-service teachers to make some important decisions, prompting teachers to choose certain behaviors that may lead to a specific development direction of teachers.

Once, when the computer broke down in class, the participant reflected after class: “I think what needs to be criticized is that the preparation is not enough. If the lesson is well prepared, even if the computer breaks down, the lesson can still be well went on. Therefore, the preparation before the class must be careful as much as possible.” (interview)

Some teachers helped shape the participant’s ideal self, such as Ms. Xu and Miss. Wu. Their body language and fluent pronunciation in the classroom made the participant admirable. As a consequence, the research findings were certified in her interview. “After the whole class, the teaching method and design were clear with the prominent focus and the obvious effect. There was nothing special in this class, but it went on successfully and students mastered it well. But in the last part of the lesson, the teacher consolidates the knowledge again through a form of telling a story, which is very admirable and I can learn from them.” (interview)

During the practicum, the participant presented the teaching class monthly. She wrote in her summary diary as the following: “No matter the advantages and disadvantages given by other teachers, these are worth learning by heart. The good ones should be used for reference and the bad ones should be improved. It is only through the process of improvement that I can make progress.” Concluded from the summary was that presentation monthly had such a big influence on the pre-service teacher’s development to shape her self-image.

At the end of the internship, Mr. Xu was assigned to participate teaching competition in the district. The participant followed the team to teach and learn English lessons. From this critical event, the participant’s focus had changed a lot, from classroom teaching sections to details, such as blackboard design, connection between different sections in a class, the use of classroom tools, etc. She also began to analyze the teaching philosophy behind the design of each section of classroom teaching. The ideal self refers to the kind of person you want to be, the knowledge of your future or imaginary self. The fundamental questions involved are “who do I want to be?” and “who should I be?” The real self is the characteristics and qualities that I think I actually have. Others’ self refers to what people think of me and how they evaluate me in the process of contact and communication with others. During the whole internship period, the participant’s ideal self was influenced by Teacher Wu and Teacher Xu. Compared with them, the participant was aware of the real self and found the existing problems of the real self and made timely adjustments and improvement, thus achieving the growth of professional self. The others’ self-development is mainly through communication and interaction among the tutor Miss. Li, Miss Wang and Miss Lu. Through the key events, the participant accepted the opinions with an open mind and actively made changes in action, and finally realized the development.

5.2.3 Professional Self

According to Super, a person's professional self-concept includes personal self-esteem, his clear understanding of himself, including his interests, his future development, his ability, as well as his potential development, etc^[7]. Occupational self-concept is the result of self-reflection of individuals in contact with society. Summarized the participant's internship diary, it can be claimed that participant's initial understanding of professional self and professional ability formed in her relationship with the culture of the internship school and the communication between teachers and students.

The participant's professional self can be revealed from her diary and summary during her internship diary. She found teachers was a laborious career for herself and other teachers. "Students come to school at 7:20 am, then they sit in the classroom reading and reciting what is required. Their English teachers come to the classroom at 7:30 am. During four classes in the morning, teachers rarely leave the office early, because they have to check students' homework with limited time left for them to go to the bathroom. As soon as lunch was over, teachers took turns going to the classroom after hours checking homework. After four classes in the afternoon, school is over at six o'clock, but students and teachers have no intention of going home. Even some teachers still stay at the office to revise homework voluntarily until seven o'clock. Teachers accompany their students to improve their English, so I think they are very painstaking!"(summary)

Some students had problems in learning and made mistakes during the practicum, which had also helped the participant's professional self development. "Today, an unpleasant thing happened that the students now were really different from our ages. There were two students that were caught by their head teacher, because the two went to the Internet cafe to play games so that they didn't finish their homework on time and slept in the class. The two were criticized in the office, but they rushed out of the office and went home angrily without asking for leave. I wonder if it is wrong for a teacher to criticize students who make mistakes?"(diray)

The participant herself had experienced students' busy studies and teachers' busy work of, as well as those students with problems in discipline management and class management. She still felt the sense of achievement when she taught the students English songs and had confidence in English conversation changed from bad to smooth, from fear to ease. Her love for the teaching profession did not change because of these temporary difficulties. These are the "intervention" for her professional self-concept development. It can be concluded as the participant wrote in the summary of her internship: "Although the work of the head teacher is trivial and complicated, as long as one puts his heart to do and anything can be done well." Although the participant is far from the ability needed for her professional self, she had confidence and was willing to take actions as many as possible.

5.2.4 Social Self

Mainly involved relationships with colleagues, students and other teachers, these interventions were nodes that affected the formation of social self-concept. As can be revealed from the internship diary, the participant was not good at interpersonal communication when the communication with the elderly or the experienced teachers may be tense, while the communication with the young teachers may relatively be casual and free. In addition to being too passive in psychological expectations, the lack of communication with the instructor was also an important reason for the unhappiness at the beginning. After changing her attitude and taking the initiative, her mood and self-cognition had changed. The participant was modest and studious, and she was good at accepting suggestions. Therefore, six English teachers at the middle school liked to guide the participant in teaching and life, so as to promote the participant's professional growth. Among them, a friend played a very important role in the change of the participant's mentality. "I talked with my friends in the evening and figured it out! Don't rush things and take your time! A lot can depend on you." The second day, the inner self of the participant was changed for the whole internship that was beneficial for self-growth. Another friend teacher gave much guidance to the participant's teaching plans. The support from her friends was also the catalyst for the participant's growth of gratitude.

6. Discussion

The narrative process is divided into three parts: self-presentation, self-understanding, and reflection and self-change. By describing their own life stories and experiences, teachers present a realistic picture of how they view themselves and their teaching practice. Through the description the participant's life stories and experiences, a realistic picture of how she viewed herself and her teaching

practice was presented during her practicum. In the process of self-presentation, the teacher's narrative must be truly unfolded to show her own personality and creativity, so as to carefully listen to her own inner voice and understand the current situation, so as to actively and effectively reveal herself in the process of narration or speech. The participant realized the consciousness and development of her self through the narrative processes of her diary, which is mainly reflected in both internal and external aspects.

6.1 Inner Feelings

Self-feelings mainly come from people and things encountered in the internship. Feelings are manifested as emotions, which are influenced by the participant's underlying beliefs or attitudes in dealing with human resources, and this influence pushes the participant to develop in a good or unhealthy direction. The diary provides a platform of self-reflection, self-dialogue and self-motivation for the pre-service teacher. The participant's open and healthy attitude helped her to solve all kinds of difficulties and problems in the internship with confidence. By means of the participant's internship was actually a journey of spiritual growth. In the diary, a confident pre-service teacher had experienced the practice for a formal teacher and her future career plans.

6.2 External force

This external force is mainly the important others and key events in the process of practicum, namely "Intervention". Significant others can reflect one's shortcomings in all aspects so as to clarify the development direction of a teacher's professional self. The key events happened in the educational teaching stories that appear in the course of the internship definitely helped the form and development of the participant's self-concept change. Both in the participant's internship encouraged her to think through her diary. Both were a kind of power of self-decision and choice, which promoted the development and change of the participant's self-concept.

7. Conclusion

By involving into the "black box" of identity dynamics [2], the study made an important contribution to cast light on processes of identity transformation during the practicum. By a combination of CDST and diaries, conflicts had been investigated and provided. Another contribution was the provision of insights into identity development as revealed in diaries, which is studied less to date.

Based on results of this study including diary, summary and interview in a pre-service teacher's practicum in a middle school, this study proposed these following suggestions to teacher's education in college from the perspective of CDST. Firstly, pre-service education should be paid more attention. For example, certain and appropriate internship should be organized at the local primary and middle school for college students to learn and practice. An internship base ensured a good external environment that may well influence the pre-service teacher's self-concept development. Secondly, college students should improve their reflective ability and conclusion. College education should pay more attention to the transformation of negative psychology of pre-service English teachers. Finally, the development of a pre-service teacher's self-concept is dynamic. In order to improve one's own teaching skills and ability as much as possible, especially the pre-service teachers, it should be conducted through this study to improve their ability of action research in daily life.

However, the major limitation of this study is time. Three months is not far more enough to study a person's identity change. Only one participant is not enough so that results may not be convincing. Further studies should fill in the gaps.

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