

RESEARCH

Open Access



# Exploring the characteristics of pre-service EFL teachers' practicum experiences: a complexity theory-based case study in China

Ming Li\*, Fangtao Kuang and Wei Dan

\*Correspondence:  
davyli2011@hotmail.com

College of International  
Studies, Southwest University,  
Chongqing, China

## Abstract

With increasing attention being paid to teacher education, various theoretical perspectives have been adopted to study on how pre-service teachers learn to teach. This study employed complexity theory as conceptual framework and examined two pre-service EFL teachers' practicum experiences by qualitative case study and identified three core characteristics of their learning-to-teach: complexity, dynamism and self-organization. It is found that pre-service EFL teacher learning, as a complex system, interacted between and among a network of socio-contextual factors and thus influenced and being influenced during the learning process in a non-linear and complex way. This study made empirical and theoretical contributions to the research field of teacher education and provided implications for university-school collaboration-based teacher education practice.

**Keywords:** Pre-service EFL teacher, Complexity theory, Practicum, Learning-to-teach

## Introduction

Practicum has been considered the best opportunity for pre-service teachers to learn to teach through applying theory into practice. Pre-service teachers' learning in the practicum as professional experiences has received increasing attention from researchers (Alamri, 2018; Becker et al., 2019; Zhu et al., 2020). Their research has shown that pre-service teachers are susceptible to a number of personal and contextual factors which can influence their learning process and outcomes. Due to the facts that they are lacking of teaching experiences, teaching in classrooms which are not their own and coping with those they are unfamiliar with, pre-service teachers' learning-to-teach experiences might be hard to be interpreted by the traditional views of knowledge-learning. In recent decades, respective theoretical lenses have been employed to explore the features of pre-service teacher learning, such as activity theory (Abdullah, 2014; Gungör & Gungör, 2018), socio-cultural perspective (Edwards & D'Arcy, 2004; Eksi & Gungor, 2018). Common across existing literature, the linear process-product conceptions of teacher learning have been thought problematic as they raise the risk of separating learning and practice and simplifying the complex processes of teacher learning. Based on this epistemological shift on teacher

learning, pre-service teachers' practicum experiences have thus been proven challenging given their complex nature and characterized as multidimensional, dynamic, and context-dependent (Leijen & Kullasepp, 2013; Mairitsch et al., 2021). However, practicum might be filled with challenges and obstacles which can contribute to the complexity of pre-service teachers' learning. Therefore, there is still need to probe into the affordances and constraints of various practicum contexts to develop better understanding of pre-service teachers' practicum experiences (Zhu et al., 2020).

In recent years, China has entered a new phase of English curriculum reform since the issue of the new versions of English curriculum standards for both primary and secondary school English education. The focus of English language education has shifted from improving students' language capabilities to the development of core competencies including linguistic capabilities, thinking disposition, learning abilities and cultural awareness. This also brings changes to pre-service EFL (English as a foreign language) teacher education because the pre-service EFL teachers recruited in recent years are expected to be the main workforce to implement the new curriculum appropriately and thus the focus of teacher education courses is on the introduction of the reform ideas and development of pre-service teachers' educational views in line with the curriculum reform. However, experienced EFL teachers, due to limited opportunities of formal teacher education, might be slow in learning about the new curriculum standards and even feel reluctant to change their practice which is strongly influenced by their already established teaching beliefs. Therefore, practicum will possibly become the site for pre-service EFL teachers to encounter conflicts and tensions between them and experienced teachers who are assigned to mentor during practicum. How to cope with the conflicts and tensions then seems to be closely related to the degree of complexity of pre-service EFL teachers' processes of learning-to-teach.

This study, drawing on complexity theory and taking pre-service EFL teachers' learning-to-teach as complex systems, explores two pre-service EFL teachers' practicum experiences through interview to examine the nature and characteristics of teacher learning as well as the contributing factors. Existing research has shown that complexity theory has been used to study on teacher education in other subjects, such as mathematics and science, but rarely in initial EFL teacher education. Meanwhile, the nature and characteristics of language teacher education have been studied but research on teacher learning as organic wholes still remain scarce. Recent research has shown that looking at teachers' professional experiences as organic wholes can "provide valuable, original insights into their complexity that could not otherwise be obtained by looking at their features in isolation" (Sulis et al., 2021). Therefore, this study, looking at the pre-service EFL teachers' practicum experiences in terms of their learning-to-teach process, can obtain a nuanced and comprehensive understanding of pre-service EFL teachers' learning-to-teach and reveal the complex, dynamic, and situated characteristics within their own eco-systems.

### **Complexity theory and teacher learning**

Complexity theory provides explanatory frameworks based on which the spontaneous emergence of social phenomena can be traced and explored. According to complexity theory, human activity (such as learning and teaching) occurs at the edge of chaos which induces enough disequilibrium to spur growth and learning but not enough to cause total disorder (Strom & Viesca, 2020).

System, also names as complex system, is the analytical unit of complexity. A system includes many components which interact with one another; the term dynamic in complex dynamic systems reflects the fact that such systems act and change over time in response to changing conditions and parameters. Meanwhile, a system compasses smaller systems and is part of a larger system (Davis & Sumara, 2006).

The complexity of complex system originates from the components within it where the interaction between actors and factors take place. Due to the variety of their actors and factors, complex systems are *complex or heterogeneous* (Larsen-Freeman & Cameron, 2008). They evolve or change over time and are therefore dynamic; they are often abrupt, discontinuous, and therefore nonlinear; they are highly sensitive to external influences and therefore open (de Bot, 2008). Complex systems exist at all levels from the inside out, that is from the neural level to the social level. There are various ways of mutual dependence and interaction between these levels, which together constitutes a huge and complex eco-system (Feryok, 2010).

Teacher learning has been defined as a construct under the impact of socio-cultural context (Kelly, 2006; Nolan & Molla, 2017; Yazan, 2012). According to complexity theory, teacher learning can be regarded as complex systems being “dynamic, non-linear and unpredictable” (Çiftçi & Karaman, 2019, p. 105). This view have subverted the traditional causality view of teacher learning (Feryok, 2010) which has given way to co-adaptation and emergence. In teacher learning system, context is no longer a background factor, but evolves into the complex system itself and interrelates with other complex systems. Variability, as the embodiment of system behavior, has an increasingly important significance in the process of interaction.

Complexity theory has been applied in research on teacher education. For example, Sulis et al. (2021) explored pre-service teachers’ wellbeing as complex dynamic systems. Tang (2007) examined the dynamics and complexity of learning how to frame teaching situations and found the personal and contextual variables that posed challenges to and provided support in the student teaching context. However, research on the dynamics of pre-service teachers’ learning-to-teach in the practicum still remain under-researched. More research is need to reveal the process of teacher learning as a complex system.

This study takes a holistic perspective to look at teacher learning as an organic whole according to complexity theory and seeks to answer the following exploratory research question:

- (1) What complex characteristics do pre-service EFL teachers’ practicum experiences have?
- (2) What are the influential factors contributing to the characteristics?

## **The study**

### **Research setting and participants**

This practicum in this study which lasted three months was part of the initial EFL teacher education program in a Chinese university. Before the practicum, pre-service EFL teachers had accomplished the learning of courses on English language teaching theories and skills as well as conducted their micro-teaching practices in their first two

and a half years of undergraduate study. When preparing for the practicum, the university allocated the pre-service EFL teachers in different teams according to the practicum schools they went to. For each team a university teacher worked as supervisor to provide suggestions and guidance during the practicum.

The research site in this study was a key secondary school which had been a co-operative practicum school with the university for years. The two pre-service teachers (Chen and Wang) who volunteered to be research participants were allocated to teach Grade 2 senior high students in two classes respectively under the mentoring of the same experienced teacher.

### **Research method**

This study adopted qualitative case study to explore the pre-service EFL teachers' experiences during the practicum period. Case study enables in-depth study of the phenomenon and can help researchers to capture the dynamic, complex and multifaceted nature (Duff, 2008) to provide a complete picture of how the teachers learned to teach. Meanwhile, teacher learning is believed to be a social event where the influence of the context should inevitably be taken into account. Qualitative case study can also enable researchers to better retain the holistic and meaningful characteristics of real-life events with an emphasis on the natural context (Yin, 2009).

### **Data collection and analysis**

The method chosen for data collection was semi-structured interview which focuses on participants' lived experiences. Interview, as a commonly used research method in case study, places great emphasis on participants' narrative reconstructions of aspects or emotional states or their identities and experiences (Duff, 2008). Therefore, researchers can follow up on issues or clarify uncertainties emerging from the interviews and seek clarity and consistency in accounts as well as elaborate on significant topics.

In this study, the two pre-service EFL teachers were interviewed in four phases. First, they were interviewed before the practicum for their expectations and preparations based on pre-designed interview questions. The second and third interviews were conducted at the end of each month after the practicum started. The last interview took place on the second day when they finished the practicum and returned to the university. After the first interview, all the later interview questions were formulated based on the participants' responses to the previous one. In all interviews, deliberate openness (Cohen et al., 2007) was adopted to guarantee the generation of probing questions for in-depth exploration. Each interview lasted around half an hour and was audio-recorded. Their lesson plans, work records, teaching reflections were also collected as supplement at the end of the practicum.

Data analysis started with reading the interview transcripts to gain familiarity with the data. Memeos and comments were added to the transcripts when reading. Next, transcripts were coded line-by-line inductively with categories and sub-categories being identified. Repeated coding and recoding were then conducted and three essential categories to describe pre-service EFL teachers' practicum experiences emerged: pre-service teachers' ways of learning-to-teach, ways of coping with the practicum environment and the roles of contextual factors. Based on the repeated coding, it became evident that the

pre-service teachers' practicum experiences were featured by their co-adaptation with multiple personal and contextual factors at specific points of time, which revealed some of the key characteristics of their complex systems of learning. Thus in the final wave of inductive coding, complexity theory was deliberately used to analyze to what extent the pre-service teachers' experiences can be conceptualized as complex systems: identifying the components of the pre-service teachers' complex system and their interaction within it, and examining dynamic changes in the system and specific system outcomes. Finally the findings were presented with focus on three core characteristics emerging from the analysis: complexity, dynamism and self-organization, to maintain a holistic account of the pre-service EFL teachers' practicum experiences and present the inherent complexity within it (Barkhuizen, 2008).

## Results and discussion

This section reports the findings by illustrating participants' practicum experiences in terms of the three characteristics emerged from data analysis: complexity, dynamism and self-organization. In the description of their experiences, the focus remains on how they coped with the practicum environment, what resources they drew on for learning and the socio-contextual variables influencing their learning systems. To illustrate the findings in fine detail, interview excerpts are selected as in-field evidence to provide a trustworthy description of the participants' experiences. Each excerpt is labeled, such as "WI1" representing Wang's first interview and "CI2" for Chen's second interview.

### Complexity

Complexity was obviously manifested in the participants' contrasting feelings when shifting from university setting to school environment. Before entering the practicum, Chen and Wang were excited: "I've been looking forward to it for long. It said that practicum is the best opportunity for us to apply what we learnt into practice" (WI1). "Finally, I will enter the real classroom [...] I want to improve my teaching abilities" (CI1). For the school mentor, they also had some hope: "I heard he is an expert teacher in the school and is the leader of the teaching team. I hope I can learn a lot from him" (WI1). At the end of the first month, they articulated some different feelings: "I have to work as a head teacher (*banzhuren*). [...] I have to get up at 6 o'clock every morning because I must arrive the classroom before 7:20 to check the morning session. I now can fall into sleep even when standing" (WI2). "The head teacher often assigned me some tasks but he didn't tell me how to do them. Even when I was preparing my teaching plan, he came to ask me to observe students' physical practice just because he had something else to do. [...] I feel being treated as a free worker" (CI2).

Coping with the mentor also consumed Wang and Chen much time and energy: "He was afraid that we might disturb his normal teaching order and affect the students' preparation for the university entrance exams (*gaokao*)" (WI2). "I thought I would teach for at least one month since the practicum has three months. But he only allowed me to teach just two weeks. It's totally out of my expectation. I feel frustrated" (CI2). The most important is they found there existed dissonance between the mentor and themselves in the views about language teaching. Although Wang and Chen sensed that the school was highly exam-oriented and everything revolved around the *gaokao*, they still held

the belief that the mentor was an expert teacher and his teaching could be the model for them to follow. However, after observing the mentor's teaching, they said: "I cannot believe his teaching is so out-of-date. [...] in his lesson, little time is devoted to developing students' listening and speaking" (CI2). "He repeatedly emphasized the assessable items that might appear on the *gaokao*. [...] He uses grammar translation method to teach grammar. [...] Mechanical drills are used as the main exercises" (WI2). After submitting their lesson plans to the mentor, Wang and Chen received his feedback that all small group works focusing on speaking should be deleted and teacher-student interaction should be conducted in whole-class asking and answering. "He told us this way can save class time since time is very limited. Our focus should be on the introduction and explanation of language items" (WI2). Facing the conflict between the mentor's traditional teaching ideas and their reform-based views, Wang and Chen felt they were caught in a dilemma: "I'm at a crossroad. Should I follow his teaching or hang on my own ideas?" (WI2) "If I follow his advice, what I have learnt would be a waste" (CI2). Chen wrote in his monthly reflection report: "He is not the model I can learn from. [...] He asked me to grade students' homework every day. I'm so frustrated now that I don't know what is the meaning of being here".

The two pre-service EFL teachers' experiences showed that their learning systems seemed interwoven with other complex systems, including the mentor's system (such as his reluctance for allowing pre-service teacher to teach), the head teacher's system (such as transferring workload to pre-service teachers) and the school's system (such as exam-oriented teaching environment), as well as the impact of the conflicts between systems, such as the conflicts of language teaching ideas between the mentor and pre-service teachers. Therefore the pre-service teachers' experiences of learning-to-teach in the practicum can be seen as situated in tensions between disruptions in relation to the contextual factors. Among the relationships among the factors, individual pre-service teachers and their uniqueness of learning-to-teach worked as "one dimension of the complex interactions of mutually influencing and recursively co-constructing systems" (Phantharakphong & Liyanage, 2021, p. 4). The nested systems consisting of the psychological, social, discursive and material dimensions and structures of practicum environment resulted in the complexity of pre-service teachers' learning process and final learning outcomes.

The factors interconnected within the systems, including interpersonal, contextual and social ones, functioned in complex ways to generate dynamic states of pre-service EFL teachers' experiences, which is converged with the recognition that learning to teach is essentially a situated and contextual activity (Zeichner, 2010). Driven by their learning expectations, the degree of the pre-service teachers' motivation of learning-to-teach in the practicum was high. However, when interacting with the immediate contextual factors, the stability of their expected learning was affected when the degree of complexity went beyond their expectation. Their learning system was thus under the impact of interconnections of factors. At the same time, pre-service teachers' systems as learners were open to contextual factors because when exposed to the practicum environment, they were at a comparatively lower status within the school's hierarchical system and received information from the context in a passive way. As such, the degree of complexity of pre-service teachers' practicum experienced inevitably increased. Among

the factors mentioned in this study, the connections between pre-service teachers and the mentor made a larger contribution in the complex process of learning-to-teach and increased its degree of complexity which was crucial for the complex feature of pre-service teachers' experiences (Hong, 2010).

### **Dynamism**

In the early phase of the practicum, the pre-service teachers held expectations for the mentor of learning from his teaching experiences. However, when realizing the differences between the mentor and themselves in educational views, Chen and Wang expressed their disappointment as mentioned above. This disrupted their expected learning trajectory and thereby generated chaos and tension. In the following lesson preparation and classroom teaching, Wang and Chen felt reluctant to follow the mentor's guidance. However, considering the mentor would observe all their classroom teaching and give final score on their practicum performance, Wang and Chen had to revise their lesson plans based on his feedback and conduct their teaching in the exam-oriented way. This showed that the pre-service EFL teachers adjusted their previous learning purposes considering the practical constraints and appeared to be obedient to the mentor.

On the other hand, Wang admitted their lack of experiences in classroom management: "when students don't give me response, I feel worried" (WI2). And they felt the mentor did well in controlling the class and keeping the pace of teaching: "I observed he could call the 'right' students to answer his questions when he found the students were absent-minded and catch their attention back to the class" (WI2). "He is very experienced in controlling the teaching time. [...] he can finish the lesson at the last minute" (CI2). So, although Wang and Chen did not agree with the mentor's teaching ideas, they felt they should not reject all his advice. They could filter his words and choose the useful information for their teaching practice. This showed that the pre-service EFL teachers shifted what they wanted to learn from the mentor from class teaching to classroom management.

Within the practicum team, Wang and Chen found other pre-service teachers also experienced similar confusion. Chen expressed his disappointment: "I'm so confused. [...] feel everything is beyond our control. But the practicum has to continue" (CI3). After a short period of feeling frustrated, Wang and Chen paid much time to think about how to solve the problems, especially how to practice their teaching ideas in practice: "The time should've been spent on textbook analysis and teaching preparation. [...] We have to survive" (WI3). Meanwhile, Wang and Chen found peer communication was useful for their learning. In weekly inquiry seminars, they worked together to analyze textbook according to the new curriculum standards: "We sit together to discuss what the unit teaching goals are and how the goals can be allocated in each lesson" (WI2) "We do micro-teaching in groups and reflect together on what can be improved" (CI3). At the end of the practicum, both pre-service EFL teachers felt peer communication provided them much support during the practicum.

From the analysis above, it can be seen that what Wang and Chen encountered in the practicum resulted in the dynamics of their complex systems of learning which led to their different states of learning. This is in line with Larsen-Freeman and Cameron

(2008)'s statement about non-linearity that "change that is not proportional to input" (p.31). Such change often takes place unexpectedly and leads to unpredictable results. Among the changes, the fact that there existed dissonant teaching views brought huge shock to the pre-service teachers and resulted in a chaotic state, just as Kostoulas and Lämmerer (2020) states that "a larger perturbation, such as a professional crisis or a major transition, might lead to a radical restructuring of the system" (p.95).

Pre-service teachers' learning to teach is regarded as a construction of the teaching self in the profession of teaching (Tang, 2003; Tang et al., 2019) where teachers seek to develop both personally and professionally. In this study, the two pre-service EFL teachers brought their cognitions formed in the university into the practicum. Their pre-established understandings about the practicum and learning expectations played as the basis of their learning system. When confronted with the realities of teaching, their "self"-oriented practice of learning-to-teach had to interweave with the external factors and form their "teaching self". During this process, dissonance and resonance between pre-service teachers' existing cognitions and school-based experiences became necessary and affected their learning. The process was non-linear where pre-service teachers had to, on the one hand, consider and reconsider their former understandings and beliefs of teaching, and on the other hand, selectively choose learning sources in terms of their learning purposes. This revealed that dynamism is embodied in the process of learning-to-teach. Although pre-service teachers' learning started from their internal (psychological) factors (e.g, determination to learning how to teach in real classroom, expectation of the practicum experiences), contextual factors inherent in the complex system of learning played important role in how the system might support teacher learning and accordingly influence how the learning outcomes might be like.

### **Self-organization**

When realizing the dissonance between the mentor and themselves had hindered their learning-to-teach, the two pre-service EFL teachers decided to make some changes to their expected learning trajectory.

They did not agree with the mentor' language teaching ideas. After a short period of feeling confused and frustrated, they figured out the ways to cope with the mentor. First, they critically analyzed the mentor's observed teaching and filtered his feedback on their lesson plans. They felt the mentor's clear instruction and good classroom management impressed them, so they decided to learn from him in these aspects: "He told me to make the teaching steps in a clear way in case I forget what to do next when the students don't give any response" (CI2) "When teaching grammar, he used the whole classroom question-answer method. It did save class time. I can use it for grammar teaching" (WI3). But Wang also thought this method rarely allowed for monitoring individual students' comprehension, so he wrote in his monthly reflection report: "I need to keep a balance. Group work or pair work should be used after whole class work to give students opportunities for more practice and I can check their use of the new structure". Through taking a critical view for the mentor's feedback, Chen thought it as a kind of their learning outcome: "I think I can see the reality in a better way" (CI4).

At the same time, Wang and Chen turned to the university supervisor for help when their lesson plans were criticized by the mentor because of the lack of emphasis on

memorizing of English language elements. “She (the university supervisor) told us it was natural that we had different ideas with the mentor. [...] because we had different educational backgrounds. He (the mentor) did not receive any formal training of the new curriculum and might have been strongly influenced by the exam-oriented teaching orientation” (W13). “She encouraged us to find out the root of the problems and make a record of them. Then we can know better about the reality and figure out the direction we will develop in the future” (C13). With the supervisor’s help, both pre-service EFL teachers regained confidence in teaching and confirmed their ideas on language teaching. “Reading the new curriculum standards again is useful. [...] now I’m sure what I think is right. I don’t need to ‘surrender’ to his (the mentor) way” (W13). “The new curriculum standards were not as idealistic as he (the mentor) said and could be really implemented in classroom as long as I want do it” (C13).

Wang and Chen discussed their lesson plans with peers in weekly inquiry seminars where all the pre-service teachers asked questions and engaged in critical thinking. Wang and Chen shared their own understandings of the textbook contents and lesson plans as well as the feedback of the mentor. Peers also shared their teaching ideas with them based on their feelings of classroom teaching. Such interaction gave Wang much confidence: “My ideas are supported by them. We all are equipped with the reform ideas” (W14). Chen also felt strength from peers: “We shared textbook analysis based on the new curriculum standards. [...] We think small group activities can promote students’ learning and add joy to their learning” (C14). Through peer interaction, Wang and Chen also found that “we are all experiencing similar dilemma” (W13) because of the difference between the “ideal” and the “real” world of teaching, so they wrote two versions of plans for each lesson. One was revised based on the mentor’s feedback and the other was the original one they designed: “I have to satisfy his demands. [...] but I’m not teaching for now. These plans will be working for my future job” (W14) “My current understandings of the textbook will be useful for my future job” (C14).

It can be seen that the pre-service EFL teachers’ adjustment to the practicum environment highlighted the adaptability and self-organization to shift the trajectory of their learning-to-teach. During this process, teacher agency, mainly their will and capacity to act, played the key role through complex negotiation with the context (Tao & Gao, 2021).

First, the pre-service EFL teachers exercised agency through dialogic feedback and conversation with the mentor, the university supervisor and peers. Such interaction was assumed as a complex system in which the pre-service EFL teachers received comments and feedback from others responded respectively based on their capabilities. These contextual factors facilitated the process of practicum and, with the pre-service teachers’ agency, worked towards their learning goals, which echoed the statement that agency makes people take concrete action to reach their goals (Brodie, 2019; Carson et al., 2021; Cong-Lem, 2021).

Second, the orientation of pre-service EFL teachers’ learning, originated from their personal needs, reflected teachers’ personalized characteristics which affected the overall process of learning. The pre-service EFL teachers utilized their learnt knowledge in the situated context of practicum, combining learning and application, and conducted reflection and (re)practice. In this way, they realized the transition from external

learning based on social activities to their own self-learning. In this process where internalization took place, under the influence of external factors (such as the requirements of the curriculum reform and future career needs), both pre-service EFL teachers gradually formed the adjustment of self-organizing after adjusting the medium for learning. Although chaotic interactions emerged (such as the dissonant views in language teaching between the mentor and pre-service teachers, the different educational orientations between the school and the new curriculum), they remained the order of learning process through self-organizing. Such adjustment was closely related to their individual learning orientation which was believed to be the main source of their agency. With their exercise of agency, the pre-service EFL teachers kept the balance between the ideal and reality, and fulfilled one of their learning expectations of preparing for future career.

### **Conclusion**

This study examined two pre-service EFL teachers' practicum experiences and explored the characteristics within them from the perspective of complexity theory which "accounts for the dynamic, situated and multifaceted nature" (Sulis et al., 2021, p. 9) of teachers' learning to teach in practicum environment. The findings presented a holistic picture of how pre-service teachers learned to teach and provided an understanding of pre-service EFL teachers' trajectory of learning to teach with unique complexity. Based on the findings, pre-service EFL teachers' practicum experiences can be assumed as situated interactions within the complex learning systems where the practice of learning-to-teach was not solely conducted by teachers themselves but rather the interconnections between individuals, institutions (schools) and social discourses. Understanding how pre-service EFL teachers learn to teach thus go beyond the assumption of implementation of educational ideas, to the consideration of individual teachers as elements of complex systems in unique circumstances (Phantharakphong & Liyanage, 2021). Teacher learning as a complex system can adapt and self-organize when interacting with contextual factors. The role of teacher agency plays in guiding the learning trajectory, teachers' perceptions of the affordances in the learning environment, and teacher" individuality presented during the learning process all together can lead to varied learning states and reveal the impact of diverse initial conditions of systems on learning process and outcomes.

Given the very limited research on pre-service EFL teachers' practicum experiences within the Chinese context, the dilemmas and associated challenges reported in this study can hardly be underestimated, especially at current time point of nationwide curriculum reform. Some implications can be drawn on how to turn practicum into an effective opportunity for pre-service EFL teachers' professional learning and development. The first implication relates to the missing link between university and school which has been long discussed as a fundamental issue in pre-service EFL teacher education. This disconnect is believed to be rooted in the discrepancy between theory-based course teaching and practice-oriented teacher learning. From the reality shock the pre-service EFL teachers experienced in this study, it can be concluded that there existed a lack of appropriate preparation for pre-service EFL teachers before entering the practicum. Researchers have provided suggestions on how to address this disconnect and, chief among them, establishing "collaborative communities and coherent connections"

(Valencia et al., 2009) among the parties involved. Based on such university-school collaboration, university-based teacher educators can develop their perceptions of “what teacher educators themselves need to know and what institutional supports need to be in place in order to meet to the complex demands of preparing teachers” (Cochran-Smith, 2003, p. 6). In teacher education practice, teacher educators not only need to deliver the declarative knowledge of teaching (such as theories on language teaching and the proposed teaching ideas and approaches by the new curriculum) but also should be able to teach about practice in ways that highlight the complexity of teaching which suggests reflexive ways of knowing about teacher learning for a deep understanding of teacher education (Loughran & Menter, 2019). Second, one key finding concerns the role of pre-service EFL teachers’ agency played during the practicum. Teachers commonly start to perform their agency with investigation of their own pedagogical beliefs and conceptions (Cong-Lem, 2021). In this study, the pre-service EFL teachers enacted their agency towards learning goals when realizing the teaching conflicts between them and the practicum environment in language teaching. This was contingent upon the affordances they perceived in the practicum and reflected the contextually situated nature of pre-service EFL teachers’ practicum experiences. Therefore, for pre-service EFL teacher education programs, it appears necessary to provide pre-service EFL teachers resources and strategies to deal with the challenges they might encounter during the transition from the “ideal” to “reality”. (Allen et al., 2013). Another implication is related to the school-based mentor who plays a key role in teaching pre-service EFL teachers how to teach and, so some extent, determining their learning outcomes during the practicum. In this study, it was clear that the mentor did not fully live up to the pre-service EFL teachers’ expectations mainly due to his insensitivity to the new curriculum reform and reluctance to provide the pre-service EFL teachers opportunities to try out reform ideas in classroom. Therefore, offering school-based mentors extensive training opportunities for professional development appears necessary which should not only focus on preparing them with knowledge and practical skills to deal with the requirements of the new curriculum reform, but also on fostering their motivation and responsibility in relation to their role as mentor. Attention should also be paid to how mentors conceptualize mentoring process as well as to whether both mentors and pre-service teachers have opportunities to articulate and (re)negotiate their views on language teaching in the context of mentoring (Arshavskaya, 2016). At the same time, although successful practicum and productive pre-service EFL teachers’ learning outcomes necessarily involve school-based mentors’ high level of participation and expertise, they are most often regarded as peripheral members, mainly as resources of teaching experiences and opportunities, in the community of teacher education. As such, school-based mentors’ role in the practicum needs to be recognized as specialists and accorded greater regard and integration (Zeichner, 2006) into the frameworks of teacher education.

This study provides a nuanced and comprehensive understanding of pre-service EFL teachers learning in the practicum and can contribute to the research field with empirical evidence to help generate insights into the particular issues faced by pre-service EFL teachers as well as shed light on the ways in which they are able to draw on their agency to cope with challenging circumstances when learning to teach. Such insights into pre-service EFL teachers’ cognitive and behavioral elements are valuable for enhancing

understanding of how pre-service EFL teachers might be supported when encountering challenges in their professional development. At the same time, complexity theory used as theoretical foundation in this study can add original insights and depth to current conceptualizations of teacher learning as a construct and open up possibilities for an ecological approach to rethinking teacher learning and practice as emergent phenomena that are co-produced within and between systems.

This study has several limitations, the most prominent being of the limited number of research participants and that both the research participants voluntarily took part in the study and most possibly could have a pre-existing interest about the topic researched. More participants with unique personal characteristics would have increased the degree of variety of data and provide a richer and more complex picture of the pre-service EFL teachers' practicum experiences. One more limitation is related to the fact that the research site was just one practicum school. The research participants' other peers were allocated in different schools. Various contexts could have revealed a richer picture of the challenges and experiences of pre-service EFL teacher learning.

#### Author contributions

ML: conceptualization, investigation, methodology, formal analysis, writing—original draft, writing—review & editing. FK: conceptualization, methodology, writing—review & editing, supervision. WD: investigation, methodology, writing—original draft, writing—review & editing. All authors read and approved the final manuscript.

#### Funding

No funding was available to the present study.

#### Availability of data and materials

The data will be available upon requesting.

#### Declarations

##### Ethics approval and consent to participate

The research ethical issues had been carefully considered before the start of data collection. First, research ethical form was developed and approved by professors invited to supervise this study since there is no ethics committee in the university. When inviting the research participants, the research aims and procedures were explicitly explained to the two pre-service EFL teachers who volunteered to engage in this study. They provided their written informed consent and agreed to be audio-recorded during interviews. All interview transcripts were sent to them for their approval before being translated into English and used in data analysis. Also pseudonym methods were used instead of their actual names to avoid any personal information being identified.

##### Competing interests

The authors declare that they have no competing interests.

Received: 9 January 2023 Accepted: 1 February 2023

Published online: 08 February 2023

#### References

- Abdullah, Z. (2014). Activity theory as analytical tool: a case study of developing student teachers' creativity in design. *Procedia - Social and Behavioral Sciences*, 131, 70–84.
- Alamri, H. (2018). Challenges in practicum: views and perceptions of EFL pre-service teachers towards field experience skills in real classrooms. *Arab World English Journal*, 9(1), 146–162.
- Allen, J. M., Howells, K., & Radford, R. (2013). A 'partnership in teaching excellence': Ways in which one school–university partnership has fostered teacher development. *Asia-Pacific Journal of Teacher Education*, 41(1), 99–110.
- Arshavskaya, E. (2016). Complexity in mentoring in a pre-service teacher practicum: A case study approach. *International Journal of Mentoring and Coaching in Education*, 5(1), 2–19.
- Barkhuizen, G. (2008). A narrative approach to exploring context in language teaching. *ELT Journal*, 62(3), 231–239.
- Becker, E. S., Waldis, M., & Staub, F. C. (2019). Advancing student teachers' learning in the teaching practicum through content-focused coaching: A field experiment. *Teaching and Teacher Education*, 83, 12–26.
- Brodie, K. (2019). Teacher agency in professional learning communities. *Professional Development in Education*, 47(4), 560–573.

- Carson, L., Hontvedt, M., & Lund, A. (2021). Student teacher podcasting: Agency and change. *Learning, Culture and Social Interaction*. <https://doi.org/10.1016/j.lcsi.2021.100514>
- Çiftçi, E. Y., & Karaman, A. (2019). Short-term international experiences in language teacher education: A qualitative meta-synthesis. *Australian Journal of Teacher Education*. <https://doi.org/10.14221/ajte.2018v44n1.6>
- Cochran-Smith, M. (2003). Learning and unlearning: The education of teacher educators. *Teaching and Teacher Education*, 19(1), 5–28.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education* (6th ed.). Routledge.
- Cong-Lem, N. (2021). Teacher agency: A systematic review of international literature. *Issues in Educational Research*, 31(3), 718–738.
- Davis, B., & Sumara, D. (2006). *Complexity and education: Inquiries into learning, teaching and research*. Lawrence Erlbaum.
- de Bot, K. (2008). Introduction: Second language development as a dynamic process. *The Modern Language Journal*, 92(2), 166–178.
- Duff, P. A. (2008). *Case study research in applied linguistics*. Routledge.
- Edwards, A., & D'Arcy, C. (2004). Relational agency and disposition in sociocultural accounts of learning to teach. *Educational Review*, 56(2), 147–155.
- Eksi, G., & Gungor, M. (2018). Exploring the use of narratives to understand pre-service teachers' practicum experiences from a sociocultural perspective. *Australian Journal of Teacher Education*, 43(4), 159–174.
- Feryok, A. (2010). Language teacher cognitions: Complex dynamic systems? *System*, 38(2), 272–279.
- Güngör, M. N., & Güngör, M. A. (2018). Pre-service English language teachers' collaborative development: The emergence of research, rehearsal and reflection (3R) model from an activity theory perspective. *European Journal of Teacher Education*, 42(1), 98–115.
- Hong, J. Y. (2010). Pre-service and beginning teachers' professional identity and its relation to dropping out of the profession. *Teaching and Teacher Education*, 26(8), 1530–1543.
- Kelly, P. (2006). What is teacher learning? A socio-cultural perspective. *Oxford Review of Education*, 32(4), 505–519.
- Kostoulas, A., & Lämmerer, A. (2020). Resilience in language teaching: Adaptive and maladaptive outcomes in pre-service teachers. In C. Gkonou, J.-M. Dewaele, & J. King (Eds.), *The emotional rollercoaster of language teaching* (pp. 89–110). Multilingual Matters.
- Larsen-Freeman, D., & Cameron, L. (2008). *Complex systems and applied linguistics*. Oxford University Press.
- Leijen, Å., & Kullasepp, K. (2013). All roads lead to Rome: Developmental trajectories of student teachers' professional and personal identity development. *Journal of Constructivist Psychology*, 26(2), 104–114.
- Loughran, J., & Menter, I. (2019). The essence of being a teacher educator and why it matters. *Asia-Pacific Journal of Teacher Education*, 47(3), 216–229.
- Mairitsch, A., Babic, S., Mercer, S., Sulis, G., Jin, J., & King, J. (2021). Being a student, becoming a teacher: The wellbeing of pre-service language teachers in Austria and the UK. *Teaching and Teacher Education*. <https://doi.org/10.1016/j.tate.2021.103452>
- Nolan, A., & Molla, T. (2017). Teacher professional learning as a social practice: An Australian case. *International Studies in Sociology of Education*, 27(4), 352–374.
- Phantharakphong, P., & Liyanage, I. (2021). Teacher professional learning and development: Linear discourses and complexities of teacher learning. *Asia-Pacific Journal of Teacher Education*, 50(3), 311–323.
- Strom, K. J., & Viesca, K. M. (2020). Towards a complex framework of teacher learning-practice. *Professional Development in Education*, 47(2–3), 209–224.
- Sulis, G., Mercer, S., Mairitsch, A., Babic, S., & Shin, S. (2021). Pre-service language teacher wellbeing as a complex dynamic system. *System*. <https://doi.org/10.1016/j.system.2021.102642>
- Tang, S. (2003). Challenge and support: The dynamics of student teachers' professional learning in the field experience. *Teaching and Teacher Education*, 19(5), 483–498.
- Tang, S. (2007). The dynamics of school-based learning in initial teacher education. *Research Papers in Education*, 19(2), 185–204.
- Tang, S., Wong, A., Li, D., & Cheng, M. (2019). Re-conceptualising professional competence development of student teachers in initial teacher education. *Research Papers in Education*, 36(2), 152–175.
- Tao, J., & Gao, X. (2021). *Language teacher agency*. Cambridge University Press.
- Valencia, S. W., Martin, S. D., Place, N. A., & Grossman, P. (2009). Complex interactions in student teaching. *Journal of Teacher Education*, 60(3), 304–322.
- Yazan, B. (2012). Second language teacher education: A sociocultural perspective. *TESOL Quarterly*, 46(1), 218–221.
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Sage.
- Zeichner, K. (2006). Changing directions in the practicum: Looking ahead to the 1990s. *Journal of Education for Teaching*, 16(2), 105–132.
- Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college- and university-based teacher education. *Journal of Teacher Education*, 61(1–2), 89–99.
- Zhu, G., Chen, B., Li, C., & Li, D. (2020). Examining preservice teachers' professional learning experience during the international teaching practicums: Insights from complexity theory and boundary-crossing construct. *Journal of Education for Teaching*, 46(5), 701–704.

## Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.