When Microblog Meets Microteaching:
A Case Study of
Chinese K-12 Pre-service Teachers' Experiences of
Using Microblog in Their Reflective Practice in Microteaching

A Dissertation
SUBMITTED TO THE FACULTY OF EDUCATION & HUMAN DEVELOPMENT
UNIVERSITY OF MINNESOTA
BY

Yang Lin

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

Aaron Doering

June 2014

Acknowledgements

It would have been impossible for me to complete this dissertation without many people's great support. I am deeply thankful to my adviser, Dr. Aaron Doering. He gave me so much encouragement and assistance in the past years that it was very difficult for me to imagine that I could have an opportunity to reach the final stop of my Ph.D. degree pursuit without him. I want to express my sincere thanks to Dr. Charles Miller. He offered me very kind assistance whenever I needed. His valuable advice helped me accomplish this dissertation in time. I would like to give my special thanks to Dr. Cassie Scharber. She guided me in the research design of my dissertation. My dissertation benefited a lot from her thoughtful contribution. I owe my deepest gratitude to Dr. Kathie Krichbaum. She kindly provided me the research assistance opportunity, which not only let me gain research experience but also offered the financial support for me to complete this Ph.D. program. I also like to thank my great curriculum and instruction community for its assistance in the past years.

Dedication

This thesis is dedicated to my parents.

Abstract

Microteaching has been widely accepted as one of the most important methods for providing on-campus clinical experiences to pre-service teachers (Amobi, 2005), while reflective practice is one of the important processes in pre-service teachers' microteaching. The communication among pre-service teachers, their supervisor and peers are the core of the process (Dewey, 1933; Schön, 1987; Shulman, 1987). On the one hand, the previous studies (e.g., Wepner, 1997) indicated that the traditional online communication tools, such as e-mails and e-journals, helped pre-service teachers conduct better reflective practice in microteaching compared with paper-based communication tools. However, these previous studies only focused on pre-service teachers' reflection-on-action (reflection after practice) and, sometimes, reflection-for-action (reflection before practice), while ignoring their reflection-in-action (reflection during practice) in microteaching. On the other hand, the recent research literature indicated that microblog, as a comparatively new online communication tool, had significantly positive impacts on education, including pre-service teachers' general reflective practice (Wright, 2010). However, none of the existing studies examined whether and how microblog has impacts on pre-service teachers' three types of reflective practice in microteaching, especially in a specific sociocultural context. Therefore, in order to fill the above research gap, this study uses a case study approach to explore Chinese K-12 pre-service teachers' experiences of using microblog to integrate the three types of reflective practice in microteaching. The contributions of this study are two-folded. On the one hand, from the theoretical perspective, after reviewing the research literature regarding pre-service teachers'

technology-enhanced reflective practice in microteaching, this study calls the attention of reforming the existing pre-service teachers' reflective practice to integrate the three types of reflective practice. This recommendation provides a new direction for future studies related to pre-service teachers' technology-enhanced reflective practice in microteaching. On the other hand, from the practical perspective, this study examines how Chinese K-12 pre-service teachers used microblog to integrate the three types of reflective practice in microteaching. The findings from this case study present the empirical evidences regarding whether and how pre-service teachers use technologies to integrate the three types of reflective practices in microteaching in a specific sociocultural context. These evidences offer the valuable reference for future eLearning tool development and technology-enhanced microteaching course design.

Table of Contents

List of Tables

List of Figures

CHAPTER ONE

INTRODUCTION

The literature (Cruickshank, 1985; Cruickshank & Metcalf, 1993; Metcalf, 1993; Vare, 1994; Cruickshank et al., 1996; Metcalf, Ronen, & Kahlich, 1996) has consistently illustrated that on-campus clinical experiences are an effective vehicle for training pre-service teachers, while microteaching has been widely accepted as one of the most important approaches of providing on-campus clinical experiences to pre-service teachers (Amobi, 2005). Therefore, it is critical to explore the issues in pre-service teachers' microteaching.

Reflective practice is one of the most important processes in pre-service teachers' microteaching, while the communications among pre-service teachers, their supervisor, and peers are the core of the process (Dewey, 1933; Schön, 1983; 1987; Shulman, 1987). On the one hand, the literature (Wepner, 1997; Ohlund, Yu, Jannasch-Pennell, & DiGangi, 2000; Germann, Young-Soo, & Patton, 2001; Bauer, 2002; Bean & Stevens, 2002; McDuffie & Slavit, 2002; Nicholson & Bond, 2003; Whipp, 2003; Oravec, 2003; Ramos, 2004; Williams, 2004; Xie & Sharma, 2004; Ramos, 2004; MaKinster, Barab, Harwood, & Andersen, 2006; F. B. King & LaRocco, 2006; Levin, He, & Robbins, 2006; Yamamoto & Hicks, 2007) indicated that the traditional online communication tools, such as e-mails, e-journals, and blogs, to name a few, helped pre-service teachers have better reflective practice in microteaching compared with traditional paper-based communication tools. On the other hand, however, there are generally three types of reflective practice: reflection-in-action (retrospective thinking during practice), reflection-on-action (retrospective thinking after practice), and reflection-for-action

1

(retrospective thinking before practice) (Schön, 1987). The literature review of this study found that the previous studies only focused on pre-service teachers' reflection-on-action and, sometimes, reflection-for-action in microteaching, while ignoring their reflection-in-action in microteaching. Furthermore, the previous studies (Hernández-Ramos, 2004; Makinster, Barab, Harwood, & Andersen, 2006) also suggested that the traditional online communication tools did not offer appropriate affordances to support pre-service teachers' reflection-in-action in microteaching.

As a comparatively new online communication tool, microblog has become increasingly popular since the launching of Twitter in 2006 (Gao, Luo, & Zhang, 2012). The recent literature (Al-Khalifa, 2008; Kroski, 2008; Young, 2008; Reuben, 2009a; 2009b; Starr, 2010; Tagtmeier, 2010; Wright, 2010) has indicated that microblog has significantly positive impacts on education, including pre-service teachers' reflective practice (Wright, 2010). Furthermore, the previous studies also suggested that microblog has the affordances to integrate pre-service teachers' three types of reflective practice (reflection-in-action, reflection-on-action, and reflection-for-action) in microteaching. However, none of these studies examined how the affordances of microblog have impact on pre-service teachers' reflective practice in microteaching, especially in a specific sociocultural context.

Therefore, in order to fill the above research gap, this study uses a case study approach to explore Chinese K-12 pre-service teachers' experiences of using microblog to integrate the three types of reflective practice in microteaching. The contributions of this study are two-folded. On the one hand, from the theoretical perspective, after reviewing the literature regarding pre-service teachers' technology-enhanced reflective practice in

microteaching, this study calls the attention of reforming the existing pre-service teachers' reflective practice to integrate the three types of reflective practice, which provides a new direction for future studies related to pre-service teachers' technology-enhanced reflective practice in microteaching. On the other hand, from the practical perspective, this study examines how Chinese K-12 pre-service teachers used microblog to integrate the three types of reflective practice in microteaching. The findings from this case study reveal the empirical evidences regarding whether and how pre-service teachers use technologies to integrate the three types of reflective practices in microteaching in a specific social-cultural context, which offers the valuable reference for future eLearning tool development and technology-enhanced microteaching course design.

CHAPTER TWO

LITERATURE REVIEW

The purpose of this study is to explore how to use technologies to integrate pre-service teachers' three types of reflective practices in microteaching, especially in a specific social-cultural context. This chapter provides the research literature which corresponds to the primary concepts in this study, including microteaching, reflective practice in microteaching, technology-enhanced reflective practice in microteaching, and microblog, a new way for technology-enhanced reflective practice in microteaching. These concepts are discussed in details in the sections of this chapter. The first section examines the concept of microblog and discusses its importance in today's pre-service teacher education programs. The second section reviews reflective practice, one of the common and important processes in microteaching, and its three types, reflection-in-action, reflection-on-action, and reflection-for-action. The third section explores the variety of technology-enhanced reflective practice in microteaching. The fourth section discusses microblog as a popular online communication tool but also an emerging way for technology-enhanced reflective practice in microteaching. The final section summarizes the findings based on the above literature review.

Microteaching

This study focuses on how to use online communication tools to support pre-service teachers' reflective practice in microteaching. Therefore, at the very beginning of this study, it is necessary to have a clear understanding of the following questions: What is microteaching? What are the key processes of microteaching? Why is microteaching important to pre-service teachers? In order to answer these questions, this section

discusses the definition of microteaching, the key processes of microteaching, and the importance of microteaching in pre-service teacher education.

Definition of Microteaching

Microteaching was originally developed by Bush and Allen at Stanford University in 1963. However, there was not an established definition of microteaching until several years later. At the very beginning, Bush and Allen simply used microteaching to name an innovative program, which was able to provide a more effective training method for pre-service teachers. Later, Allen (1966) characterized microteaching as "scaled-down encounter in class size and class time" (p.1). After another two years, the concept of microteaching was further developed as:

> A teacher education technique [which] allows teachers to apply clearly defined teaching skills to carefully prepared lessons in a planned series of five to ten-minute encounters with a small group of real students, often with an opportunity to observe the results on videotape. (Bush, 1968, Preface)

One year later, Allen and Ryan (1969) listed the following unique characteristics of microteaching compared to the other pre-service teachers' training methods:

- Microteaching is an authentic teaching environment in which the roles of teacher and students are clearly identified;
- Each microteaching session only focuses on a specific teaching skill, so it can reduce the complexity of normal classroom teaching significantly;

5

- Microteaching uses video recording and reviewing to increase the supervision of practice, which can significantly expand the traditional knowledge-of-results or feedback dimension.

Key Processes of Microteaching

Microteaching usually includes the following key processes (Macleod, 1987):

- The presentation process, in which a specific teaching skill is introduced with a sample video;
- The practice or teaching process, in which a pre-service teacher attempts to practice the teaching skill to teach a mini-course under videotaping while the peers play the role of students;
- The reflective practice process, in which the video of this pre-service teacher's performance is viewed and criticized by the pre-service teacher, the peers and the supervisor; and finally, sometimes,
- The re-teaching process, in which the pre-service teacher re-practices the skill and goes through the above teaching phase and critique phase again.

Importance of Microteaching in Pre-service Teacher Education

The contributions of microteaching to pre-service teacher education are significant. The literature (Cruickshank, 1985; Cruickshank & Metcalf, 1993; Metcalf, 1993; Vare, 1994; Cruickshank et al., 1996; Metcalf et al., 1996) illustrated that on-campus clinical experiences are an effective vehicle for training pre-service teachers, while microteaching has been widely accepted as one of the most important approaches of providing on-campus clinical experiences to pre-service teachers (Amobi, 2005),

which can be found in 91% of pre-service teacher education programs (Cruickshank et al., 1996). Today the application of microteaching has shifted from its original focus on assisting pre-service teachers to learn specific teaching skills to offering them the comprehensive teaching opportunities and leading them to become successful teachers through on-campus clinical experiences (Amobi, 2005).

<div align="center">Reflective Practice in Microteaching</div>

The previous section not only discusses the concept of microteaching and its significant contributions to pre-service teacher education, but also highlights reflective practice as one of the key processes in microteaching. Therefore, it is important to understand the following questions: What is reflective practice? What are the different types of reflective practice? Why is reflective practice important in microteaching? What is the core of reflective practice in microteaching? To answer these questions, this section discusses the definition of reflection practice, the types of reflection practice, the contributions of reflective practice in microteaching, and the core of reflective practice in microteaching.

Definition of Reflective Practice

Reflection is generally defined as an "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it leads" (Dewey, 1933, p. 9), while reflective practice, a concept raised by Schön (1983; 1987), involves thoughtfully reviewing one's own previous experiences of applying knowledge in practice while being coached by subject matter experts.

Types of Reflective Practice in Microteaching

There are the following three types of reflective practice in microteaching: reflection-in-action, reflection-on-action, and reflection-for-action (Schön, 1987). Reflection-in-action happens during the practice, which involves thinking of current experiences, reviewing feelings incurred, and evaluating knowledge being used (Schön, 1987). Reflection-in-action is regarded as the most challenging type of reflection practice, because it "goes beyond stable rules - not only by devising new methods of reasoning, but also by constructing new methods of understanding, strategies of actions, and ways of framing problems" (Schön, 1987, p. 39).

Reflection-on-action involves the retrospective thinking after the practice. It is when a practitioner investigates what happened during the practice, and the motivations and the rationales for acting in such a specific manner (Schön, 1987).

Reflection-for-action differs from reflection-in-action and reflection-on-action since it is:

The desired outcome of both previous types of reflection. We undertake reflection, not so much to revisit the past or to become aware of the metacognitive process one is experiencing (both noble reasons in themselves), but to guide future action (the more practical purpose). (Killion & Todnem, 1991, p. 15)

That is to say, reflection-for-action focuses on planning for the future, which usually occurs before the practice.

Similarly, van Manen (1995) distinguished the three types of reflective practice: retrospective reflection (compatible to reflection-on-action) focuses on previous actions,

while contemporaneous reflections (compatible to reflection-in-action) and anticipatory reflections (compatible to reflection-for-action) pay more attention to future actions. Therefore, reflection practice should be understood as a "temporally distributed phenomenon involving the pre-active, interactive and post-active phases of teaching" (Conway, 2001, p. 90). The continuum of reflection-in-action, reflection-on-action, and reflection-for-action makes reflection "a process that encompasses all time designations, past, present, and future simultaneously" (Killion & Todnem, 1991, p. 15).

Contributions of Reflective Practice in Microteaching

Pre-service teachers' reflective practice in microteaching is critical because preparing effective and reflective teachers is a recurring theme in pre-service teacher education (Amobi & Irwin, 2009). Numerous previous studies (e.g., Dewey, 1933; Schön, 1983; 1987; Shulman, 1987) have highlighted the importance of conducting reflection practice in pre-service teacher education. Especially recently, "reflective teaching" and "teachers inquiring into their own practice" have become the slogans closely surrounded by both teacher practitioners and educational researchers (Makinster et al, 2006). For example, The U.S. National Science Education Standards clearly stated that pre-service teachers should be offered with "regular, frequent opportunities for individual and collegial examination and reflection on classroom and institutional practicer", and pre-service teachers should "receive feedback about their teaching... and apply that feedback to improve their practice", and pre-service teachers should "use various tools and techniques for self-reflection and collegial reflection" (National Research Council, 1996, p. 68).

Core of Reflective Practice in Microteaching

As discussed above, the main purpose of reflective practice in microteaching is to help pre-service teachers engage in the conversation of their microteaching performance and to identify their strengths and weaknesses. During the reflective practice in microteaching, pre-service teachers watch their teaching videos and reflect on their performances and write reflection notes, which aims at developing self-analysis and, eventually, reflective practice. Because pre-service teachers' reflective practice in microteaching is usually assisted by a supervisor and peers' oral or written feedback, pre-service teachers' reflective practice in microteaching is not accomplished individually. On the contrary, it is socially constructed by pre-service teachers with the support from their supervisor and peers. That is to say, how to improve the communications among pre-service teachers, their supervisor, and peers to facilitate pre-service teachers' reflective practice becomes the core of reflective practice in microteaching.

Technology-enhanced Reflective Practice in Microteaching

The previous section emphasizes the importance of communication among pre-service teachers, their supervisor, and peers in pre-service teachers' reflective practice in microteaching. Therefore, it is reasonable to ask the following questions: Do technologies have impacts on pre-service teachers' reflective practice in microteaching? If yes, how do technologies contribute to pre-service teachers' reflective practice in microteaching? In order to answer these questions, this section reviews the previous studies regarding whether and how different technologies have impacts on pre-service teachers' reflective practice in microteaching. A summary of the findings from these studies is presented at the end with the introduction of the concept of affordances.

If improving pre-service teachers' communications in reflective practice of

microteaching is critical, it is meaningful to explore how various technology-enhanced

communication methods contribute to these communications. Traditional pre-service

teachers' reflective practice is usually paper-based. That is to say, pre-service teachers use

paper-based communication tools, such as reflection notes and reflection reports, to

submit their reflection results to their supervisor and wait for feedbacks. Sometimes pre-

service teachers also share their reflections with peers. The drawbacks of paper-based

communication tools in pre-service teachers' reflective practice are obvious, such as

limited audiences and limited feedbacks (Hernández-Ramos, 2004). Therefore, recently

researchers have begun exploring the possibilities of using different online

communication tools to improve the communications in pre-service teachers' reflective

practice and, consequently, improve their reflective practice itself. These online

communication tools include e-mails (McLellan, 1998; Whipp, 2003), mailing lists

(Wepner, 1997), e-journals (Germann, Young-Soo, & Patton, 2001; F. B. King &

LaRocco, 2006; MaKinster et al., 2006), blogs (Oravec, 2003; Ramos, 2004; Williams,

2004; Xie & Sharma, 2004), online chatrooms (Ohlund, Yu, Jannasch-Pennell, &

DiGangi, 2000; Bauer, 2002), and online discussion forums (Bean & Stevens, 2002;

McDuffie & Slavit, 2002; Nicholson & Bond, 2003; Ramos, 2004; MaKinster et al.,

2006; Levin, He, & Robbins, 2006; Yamamoto & Hicks, 2007).

In one of the above studies, Hernández-Ramos (2004) analyzed the use of blogs

and an online discussion forum for an instructional technology course in a teacher

preparation program. The pre-service teachers in this study were required to participate in

blogging and online discussions. The study results showed that both blogs and online

discussions can improve class communications because the pre-service teachers who

rarely spoke in the classroom were able to present themselves through blog posting and

online discussion while the pre-service teachers who had a lot to share in the classroom

could still contribute their ideas without dominating the conversations in the classroom

(Hernández-Ramos, 2004). Therefore, this study reached the conclusion that blogs and

online discussion forums can engage pre-service teachers with computer-assisted

communication, which should be able to result in better learning, and the nature of each

of these online communication tools can encourage pre-service teachers to become

reflective practitioners (Hernández-Ramos, 2004).

In another study, Makinster et al. (2006) examined how the pre-service teachers in

a secondary science methods course at a large Midwestern university conducted

reflective practice in three different online settings: (a) a private journal, (b) an

asynchronous discussion forum, and (c) a discussion forum within a web-supported

community of teachers. The study results indicated that "reflecting on one's teaching by

participating in online discussions with experienced others is an ideal situation in a pre-

service experience" (MaKinster et al., 2006, p. 574), which suggested that online forum

discussion is better than simple private journal writing for pre-service teachers' reflective

practice.

Specifically focusing on pre-service teachers' reflective practice in microteaching,

Yamamoto and Hicks (2007) used digital video to record pre-service teachers'

microteaching performance in a teaching methodology class at an education college in

the East Coast. After each session, the pre-service teachers received a CD with their own

microteaching video and ones by other peers, and they were required to post feedback about their peers' performances anonymously on an online discussion forum and wrote a self-reflection for a supervisor-pre-service teacher conference (Yamamoto & Hicks, 2007). At the end, this study found that the effectiveness of immediate supervisor and peers' feedback becomes possible by sharing multiple movie files and the anonymous peer feedback via the online discussion forum (Yamamoto & Hicks, 2007).

Summary: Affordances of Technologies for Pre-service Teachers' Reflective Practice in Microteaching

Generally, affordances are defined as the artifacts in a specific environment which can determine whether and how the environment is used by an observer (Kirschner, Strijbos, Kreijns, & Beers, 2004). They are ecological concepts that are relational to the user and environment (Wells, 2002). In this study, affordances of a communication tool refer to the artifacts that the tool can provide to support pre-service teachers' reflective practice. For example, e-journal has the affordances which are better for pre-service teachers to do private communications, while online forum has the affordances which are more appropriate for pre-service teachers' public discussions.

On the one hand, the studies discussed in this section suggested that, compared with the affordances of paper-based communication tools, the affordances of online communication tools are more helpful for pre-service teachers' reflective practice. For example, Hernández-Ramos (2004) found that the combination of blog and online discussion forum have benefits to pre-service teachers' reflective practice. In another example, Makinster et al. (2006) demonstrated that online forum discussion, especially supported by teacher community, is better than simply private journal writing, and

13

combining both of them can be even better. As the third example, Yamamoto and Hicks (2007) also used online discussion forum to pre-service teachers' reflective practice in microteaching and demonstrated its significance. All of these studies suggested that pre-service teachers' reflective practice can be improved with strengthening the online communications with their supervisor and peers.

On the other hand, these studies also demonstrated that different online communication tools have different impacts on pre-service teachers' reflective practice because of their different affordances. For example, Hernández-Ramos (2004) compared online communication tools regarding their affordances for pre-service teacher' reflective practice in microteaching. The results (Figure 2.1) showed that these online communication tools can be categorized into four groups (Hernández-Ramos, 2004):

- Group 1, including blogs, Wikis, online discussion forums, and e-mail, has public and asynchronous affordances;

- Group 2, including multiple-way chat and online whiteboard, has public and synchronous affordances;

- Group 3, including online whiteboard, instant messaging, and two-way chat, has private and synchronous affordances;

- Group 4, including mailing lists and online discussion forums, has private and asynchronous affordances.

The results suggested that some online communication tools, such as online discussion forums and online whiteboard, may have affordances in more than one category. The results also suggested that, even the online communication tools within one category may

14

still have slight different affordances. For example, Figure 1 shows that blogs and e-mail

are in the same group but blogs have more public affordances compared to e-mail.

Public

Blogs   Multiple-way Chat

                                                            Online Whiteboard

Wikis

Online Discussion Forums

E-mail

Asynchronous   **Synchronous**

Mailing Lists

                                                            Online Whiteboard

                                                            Instant Messaging

Online Discussion Forums   Two-way Chat

Private
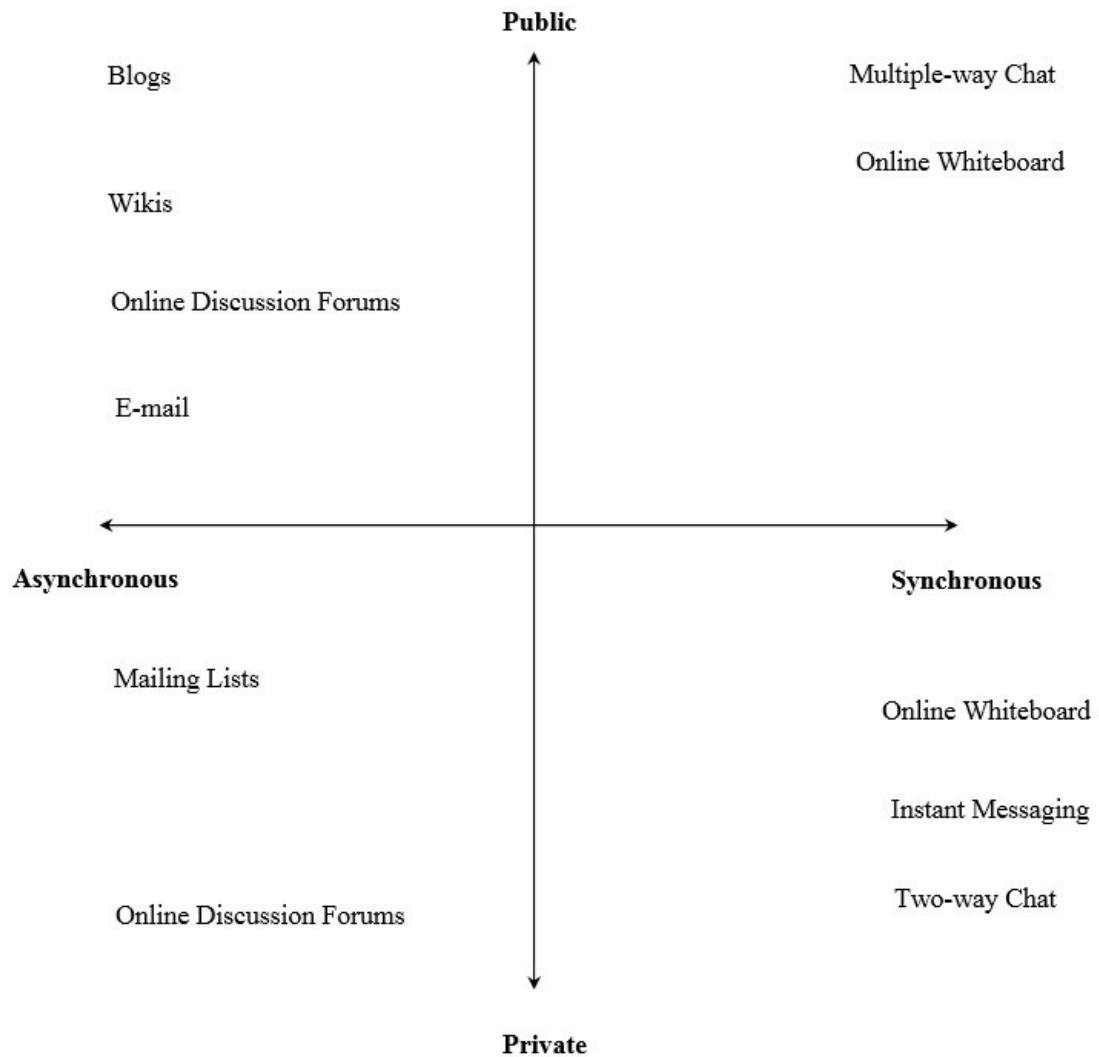
Figure 2.1. Affordances of technologies for

pre-service teachers' reflective practice in microteaching (Hernández-Ramos, 2004)

Microblog: An Emerging Way for

Technology-enhanced Reflective Practice in Microteaching

The previous section reviews the previous studies and reaches the conclusion that

the affordances of different technologies have not only significant but also different

impacts on such reflective practice. Therefore, it is meaningful to investigate the

following questions: What is microblog? What are the unique features of microblog?

How is microblog used in education? How is microblog used in China? How is

microblog used in China's education? In order to answer these questions, this section

discusses the definition of microblog, compares microblog with other online

communication tools based on their features, explores its contributions to education, and

analyzes the situation of microblog in China, especially in China's education. The

summary of the affordances of microblog for education is presented at the end of this

section.

Definition of Microblog

There has not been a well-established definition of microblog. Generally

microblog enables users to publish and share short messages for real-time or

asynchronous communication within 140 characters (Gao et al., 2012). Because of the

length restriction (no more than 140 characters), microblog is simple and easy to use.

Such an easy way of communication also means that it is possible for microbloggers

(microblog writers) to publish and share information instantly. Furthermore, since

microbloggers can read, follow, reply, or forward one another's postings, technically they

can have interactions and collaborations from any corner of the world (Java, Song, Finin,

& Tseng, 2007). Because of these unique affordances, microblog is regarded as "a Web

2.0 tool which is a relatively recent extension of blogging, working in similar ways to texting (SMS)" (Wright, 2010), or "the SMS of the Internet" (Alexa, 2012).

Affordances of Microblog

As an emerging online communication tool, microblog has become increasingly popular since the launching of Twitter in 2006 (Gao et al., 2012). For example, Twitter (www.twitter.com) is the most well-known microblog website and also one of the top ten most visited websites on the Internet (Alexa, 2012). This microblog website has over 500 million active users in 2012, generating over 340 million tweets daily and handling over 1.6 billion searching queries per day (Dugan, 2012). The popularity of microblog comes from its unique features. For example, when compared with instant messaging, such as MSN messenger or Yahoo! messenger, microblog shows its own features. Usually instant messaging is a "one-to-one" communication (a communication between two users), while microblog is generally a "one-to-many" communication (a communication between a microblogger and his or her followers), although a microblogger has the option to communicate with others individually. In other words, on instant messaging tools a link represents a mutual agreement of a relationship between two users, while on microblog a user is not required to reciprocate followers by following them so that a path from a user to another may not be able to be reversed (Kwak, Lee, Park, & Moon, 2010).

When compared with chat rooms or online discussion forums, microblog has its unique features. On the one hand, in multi-participant and public environments, such as chat rooms and online discussion forums, coherence (sustained, topic-focused, person-to-person exchanges) is often problematic (Honeycutt & Herring, 2009). Because messages in chat rooms and online discussion forums are posted in the order they are received by

systems rather than the order of what messages they are responding to, messages that logically respond to one another are usually disrupted by intervening messages (Honeycutt & Herring, 2009). On the other hand, microblog seems an even worse "noisy" environment. The large number of tweets, the high tweet posting speed, and the fact that tweets are posted in the order received by systems, all make microblog have higher degree of disruption compared with a typical chat room or discussion forum (Honeycutt & Herring, 2009). However, microblog allows users to use @ sign to direct messages to others, which Honeycutt and Herring (2009) found out is an effective strategy for relating one tweet to another and, eventually, for making coherent exchanges possible.

Even when compared with blogging, microblog has significantly different features. Java et al. (2007) pointed out that microblog has two affordances which blogging does not have: First of all, microblog satisfies a need for a much faster mode of communication because, by encouraging short posts, it lowers users' requirement of time and thought investment for generating content. Second, microblog has much higher frequency of updating since a blogger (blog writer) may update his or her blog once every few days while a microblogger (microblog writer) can post several or even hundreds of updates in a single day. In another study, Ebner and Schiefner (2008) argued that microblog is much easier and faster than blogging since most of microbloggers do not write long texts compared to their normal blogs. They also found that normal blogging is seen as a tool for knowledge saving, coherent statements, and discourse, while microblog is used most for writing about their thoughts and quick reflections (Ebner & Schiefner, 2008).

18

These previous studies suggested that there are at least two important affordances of microblog, individual awareness and community awareness, which have potential value to education, including pre-service teachers' general reflective practice. First of all, microblog can enhance individual awareness. For example, "what are you doing?" This is the primary question which Twitter, the most popular microblog website in the world, is asking its users, microbloggers. This question actually emphasizes individual awareness, one of the most important affordances of microblog, which is to encourage microbloggers to reflect and post their life experiences briefly and frequently. That is to say, microblog encourages microbloggers to pause for a moment to simply review and record every glimpse of their daily life. Through such quick and constant updates, microbloggers publish what is going on in their lives, which gradually gives us, their "followers", an overview of the rhythm and the content of their daily lives. Although some of microbloggers' posts seem insignificant and mundane, by reading these posts we eventually end up with a general sense of the interests and character traits of microbloggers who we are following (Thompson, 2008). Similarly, McFedries (2007) argued that the purpose of microblog is to strengthen each individual's cyberspace presence, an elusive concept that refers to being "out there", wherever "there" is, as much as possible. Therefore, teachers and students are able to use microblog as a tool to share their personal life experiences and present their unique "being" on the Internet, while this brand-new online life experience presentation can be used for education purposes.

The second affordance of microblog for education is that microblog can offer community awareness. Mischaud (2007) explored the question why people would like to use microblog to disseminate messages and finally reached the following conclusion:

[Microblog] appears to be very much a part of the people who use it to send out random thoughts and details about their daily lives. Beyond that, there is not much else to extract. There are broader, and valid, implications to be examined, such as privacy, surveillance, and probable effects on face-to-face interactions, but in its pure function, Twitter addresses an innate human desire to converse and to be heard. Seen in this light, it is no surprise that people have appropriated it to reflect whatever use or style of communication they want. (p. 38)

The "style of communication they want" Mischaud mentioned above is that microbloggers can use "following" and "follower" functions in a microblog website to establish their online social network based on their personal interests so that microbloggers can share their thoughts with others who have similar interests. When microbloggers log in their microblog accounts, they can overview all the updates in their online social network. This is called Community-at-a-glance (Hazlewood, Makice, & Ryan, 2009), which allows individuals to quickly get a sense of the overall activity within a community through others' posts. Furthermore, microbloggers are also able to participate in, interpret, and co-design the community experience by following a central microblogger or constantly interacting with other microblog peers (Hazlewood et al., 2009). That is to say, microblog can help microbloggers easily sense the existence of their community, which eventually support them to take ownership of their community both virtually and at their physical locations (Hazlewood et al., 2009). Therefore, if used appropriately, teachers and students can use microblog as a tool to establish their online learning communities.

Microblog in Education

Because of the unique affordances discussed above, microblog "has lately gained notable interest from the education community" (Cetintas, Si, Aagard, Bowen, & Cordova-Sanchez, 2011, p. 292). For example, Onlinecollege.net (2009) listed 100 examples of how to use microblog in education, which include group projects, research, communication and discussion, library, social tools, study tips, public relations and announcements, career preparations, and news and references, to name a few.

Although interactions via microblog are often informal or even, sometimes, playful (Dunlap & Lowenthal, 2009), microblog enables learners and instructors to exchange ideas and resources in a timely fashion (Paz, 2009; Thames, 2009; Click & Petit, 2010; Hansen, 2011; Luo & Gao, 2012), and, eventually, promotes a collaborative virtual learning environment (Gao et al., 2012). As Luo and Gao (2012) emphasized:

> Although the original purpose of microblog tools is to connect with others in a wide network and instantly share what is happening to them with the rest of the world, educators have vigorously attempted to repurpose the utilization of the tool and integrate it into various educational settings to promote student learning. (p. 199)

The above perspective has been strengthened by many recent studies (e.g., Al-Khalifa, 2008; Kroski, 2008; Young, 2008; Reuben, 2009a; 2009b; Starr, 2010; Tagtmeier, 2010; Cetintas et al., 2011). These studies focused on whether it is meaningful to use microblog in different educational contexts, learning activities, and learning assessments, and their findings are discussed in details as below.

21

First of all, some studies examined whether microblog can be used for school libraries to strengthen the relationship with readers. Kroski (2008) found that librarians can utilize microblog to engage students. In order to demonstrate her opinion, she used several cases, including a case at the University of Illinois at Urbana-Champaign where microblog became such an integral tool that several institutions post updates directly on the University library home page.

Second, some studies explored whether microblog is beneficial to school marketing. Reuben (2009a, 2009b) examined using microblog in higher education for marketing and communication. He argued that "colleges and universities are beginning to embrace social media and realizing the potential power and implications for using it as a component of their overall marketing mix" (Reuben, 2009a, p.1) although he admitted that people have not found a well-defined way (Reuben, 2009b) to use microblog for marketing in higher education yet.

Third, some studies focused on whether microblog can help formal classroom communications. Al-Khalifa (2008) asked the students in his course to sign up for microblog so they were able to receive classroom announcements and news posted on the course blog. At the end of this study, he found that the service proved to be very valuable to the students although it came with a number of challenges and drawbacks (Al-Khalifa, 2008). In another study, Young (2008) discussed the application of microblog at universities. In his study, David Parry, an assistant professor at the University of Texas at Dallas said that microblog was "the single thing that changed the classroom dynamics more than anything I've ever done teaching" (p. 15), although he was reluctant to use microblog when he first heard (Young, 2008). In a more recent study, Cetintas et al.

(2011) took advantage of microblog as an effective tool in classrooms to investigate how to design microblog questions for classroom discussions. Luo and Gao (2012) found that, after participating in the structured microblog-supported collaborative and reflective activities during a class, the students "had an increased positive attitude towards the educational use of microblog after the class activities" (p.199).

Fourth, some studies examined whether microblog can help informal classroom communications. Ebner, Lienhardt, Rohs, and Meyer (2010) studied how to use microblog in higher education classrooms, and reached the conclusion that "microblog should be seen as a completely new form of communication that can support informal learning beyond classrooms" (p. 92). In another study, Kassens-Noor (2012) explored the teaching practice of microblog as an active, informal, outside-of-class learning tool and found that microblog has the potentials to develop e-learning communities for higher education.

Fifth, some studies focused on how to connect microblog with course management system (CMS), such as Blackboard. Thoms (2012) studied integrating microblog with traditional blogging so that the students had the ability to use their personal microblog accounts to bring new information into CMS. Although the result of this study was "more than the sum of the parts," but "it did result in important insights for future design iterations" (p. 179).

Sixth, some studies investigated whether microblog can be a creative tool for teaching specific subjects. For example, microblog may be used for language teaching. There is a microblog website called Twitterlearn (http://www.twitterlearn.com/), which allows students to sign up for regular quizzes on Twitter to test their foreign language

skills. Most of the quizzes feature a phrase or a few words which need to be translated into a specific foreign language (Twitterlearn, 2009). By clicking the link published with each microblog entity, students are able to check their answers on the website (Twitterlearn, 2009). If teachers have private concerns about using microblog in their classrooms, they can also use "Edmodo" (www.edmodo.com), a microblog website especially designed for educators to set up their own microblog community rather than using public microblog websites. "Edmodo" provides a secured way for teachers and students to share study notes, links, and files, and teachers also have the ability to send alerts, events, and assignments to students (Edmodo, 2009). In one study, Steven (2008) examined how to use microblog in language teaching. The students in his study were encouraged to follow their instructors or some language experts' microblogs (Steven, 2008). He found out that, due to small posting requirements, the students did not need to feel any pressure of writing long blog posts (Steven, 2008). Furthermore, he also found out that the students were also able to send posts from their cell phones, which gave the students more freedom to practice their English whenever it was most convenient to them (Steven, 2008). The results of his study showed that microblog has the positive meaning in language learning (Steven, 2008). In another study, Lomicka and Lord (2012) investigated how the college students in an intermediate French class used microblog to conduct language practice with native French speakers outside of class time, and found out that the participants can "quickly formed a collaborative community in which they were able to learn, share and reflect" (p. 48). In a very recent study, Julia and Guy (2013) tracked the experiences of two academic microblog users and found that using microblog can be regarded as "semiotic and sociolinguistic practice", which can "offer an

appropriately dialogic and exploratory methodology to the study of New Literacies" (p. 47).

Last but the most important, a recent study has been found to examine whether microblog has the potentials to contribute to pre-service teachers' reflective practice. Wright (2010) reported a case study with eight participants during a teaching practicum, posting to Twitter from their phones or computers, examining the question "Does microblog help teacher education students develop self-reflective practices?" At the late stage of the study, Wright (2010) met the participants to discuss their Twitter experiences. Based on these participants' tweets (the microblog entries on Twitter) and subsequent focus group feedback, Wright (2010) found that "an identified benefit was a sense of community" since the "participants appreciated reading others' tweets and receiving messages of support when they faced challenging situations" (p. 259). Therefore, at the end of the study, Wright (2010) reached the conclusion that, although 140 characters of microblog "were initially difficult and limiting for explaining ideas", microblog "honed participants' reflective thinking", which "was highly valued in the very individual experience of teaching practicum" (p. 259).

Microblog in China

Weibo (微博) is the Chinese translation for microblog. Because of the Internet censorship policy in China, Twitter is blocked in China. Seeing the great potential of the microblog market in China, many Chinese Internet companies emulated Twitter and launched microblog websites since 2007, such as Fanfou (饭否), Jiwai (叽歪), Digu (嘀咕), and Tengxun Weibo (腾讯微博) (Qiang, 2013, Tong & Lei, 2013). Unfortunately, after the Ürümqi riots in 2009, Chinese government worried about the negative impact of

microblog and temporally shut down these microblog websites (Epstein, 2011). However, at the same time, Sina (新浪), the largest Chinese Internet portal, began its microblog service, Sina Weibo, (新浪微博) since it has the close relationship with Chinese government (Epstein, 2011). After several years, Sina Weibo has become the microblog service leader in China, which has 56.5% of China's microblog market according to active users, and 86.6% according to browsing time (Resonance China, 2010).

The current situation of microblog can be explained from the following two aspects. On the one hand, due to the Internet censorship policy in China, nowadays all the microblog websites in China adopted very strict self-censorship policies and methods (Buckley, 2011). For example, the study conducted by the computer scientists at Rice University, Bowdoin College, and the University of New Mexico demonstrated that 30% of deletions on Sina Weibo occurred within 5 to 30 minutes after posting and that nearly 90% of the deletions happen within the rest 24 hours (Hilburn, 2013). Furthermore, since 2011, Sina Weibo began to encourage users to verify their names, resident identity cards (身份证), and cell phone numbers (Nan & Zhang, 2011). On the one hand, however, today microblog has become one of the important online communication tools in China. It was estimated that there were 309 million microblog users in China in 2012 (Qiang, 2013). Furthermore, microblog has shown the leading role of breaking the sensitive news, such as China's high-speed train collision in 2011, serving as an outlet for expressing the opposition to the government (Wines & Lafraniere, 2011). Tong and Lei (2013) argued that "when the Chinese regime is facing a crisis of hegemony, the microblogosphere provides an ideal battleground for the war of position", and "in the long run, from a

26

Gramscian hegemonic lens, there is a tidal shift of counter-hegemony over official

hegemony in the microblogosphere" in China (p. 311).

Microblog in China's Education

Although microblog has been widely used in China, very few studies have been

found related to microblog in China's education. Some studies focused on the positive

impact of microblog. Hao (2011) discussed the value microblog in China's distance

education. He used a brief microblog example in a Chinese literature course to point out

that Chinese learners can use microblog to have active communications, share learning

resources, and develop cooperation skills (Hao, 2011). Huang, Wang, Jiao, and Fu

(2011) used a questionnaire to study Chinese graduate students' attitudes towards

microblog. The results showed that the students' attitudes were generally positive with

significant age differences and minimal gender differences (Huang et al., 2011). The

study also found that how long the students used microblog was significantly associated

with their attitudes so that Chinese learners should practice microblog as early as possible

(Huang et al., 2011). Tang (2011) also conducted a survey among Chinese college

students and found the similar results: 98% of the survey participants liked microblog,

96% used microblog already, and 81% of the students agreed that the teaching through

microblog was helpful. However, this study did not give the details of how the teaching

through microblog was conducted. Zhang (2011) conducted a case study to investigate

several well-known English teaching microbloggers in China to analyze how to become

successful English teaching microbloggers. However, the study did not have any

empirical evidence from the learners, the followers of these microbloggers. Wei (2013)

argued that microblog has significant impact on the daily life in China, and, therefore, the

educational practitioners in China should be aware of the important role of microblog in Chinese students' interactive learning. Unfortunately, the scholar did not provide any empirical data to support her argument, either.

On the other hand, few studies called attention to the negative impact of microblog on China' education. Peng (2008) argued that the social-cultural issue is the key reason why microblog may not be able to be successful in China although it may be popular in North America and Europe. On the one hand, the people in North America and Europe are more independent in their lives, and, therefore, they spend more time and energy on their individual interests and they would like to be grouped with others to share their interests (Peng, 2008). However, on the other hand, Chinese people are more dependent on others, and, therefore, they usually do not like to take too much risk to develop their special interests (Peng, 2008). That is to say, Chinese people prefer to follow the social interests in the mainstream of the society (Peng, 2008). Therefore, Peng (2008) reached the conclusion that microblog may be not appropriate for Chinese culture although no empirical evidence was provided in the study. In another study, Yang (2012) argued that, although microblog offers a new platform for the ethical education in China, it, at the same time, also distributes negative ideas to Chinese students. Therefore, she reached the conclusion without any empirical evidence, that it is important to understand how microblog has the impact on students' thinking and behaviors so that to the ethical education in China can be improved accordingly (Yang, 2012).

Issues in Technology-enhanced Reflective Practice in Microteaching

The previous sections discuss the research literature regarding technology-enhanced pre-service teachers' reflective practice in microteaching. Therefore, it is

28

reasonable to ask the following question: What can be learned from these previous studies? In order to answer this question, this section summarizes the issues revealed in these studies.

As discussed in the previous sections, scholars have explored technology-enhanced reflective practice in pre-service teachers' microteaching from many different perspectives. However, the findings from their studies also suggested that there are some common issues in this field (Figure 2.2), which include:

- Issue 1: Reflective practice capability

- Issue 2: Microteaching

- Issue 3: Reflection-in-action

- Issue 4: Reflection-on-action

- Issue 5: Reflection-for-action

- Issue 6: Technologies

- Issue 7: Social-cultural contexts
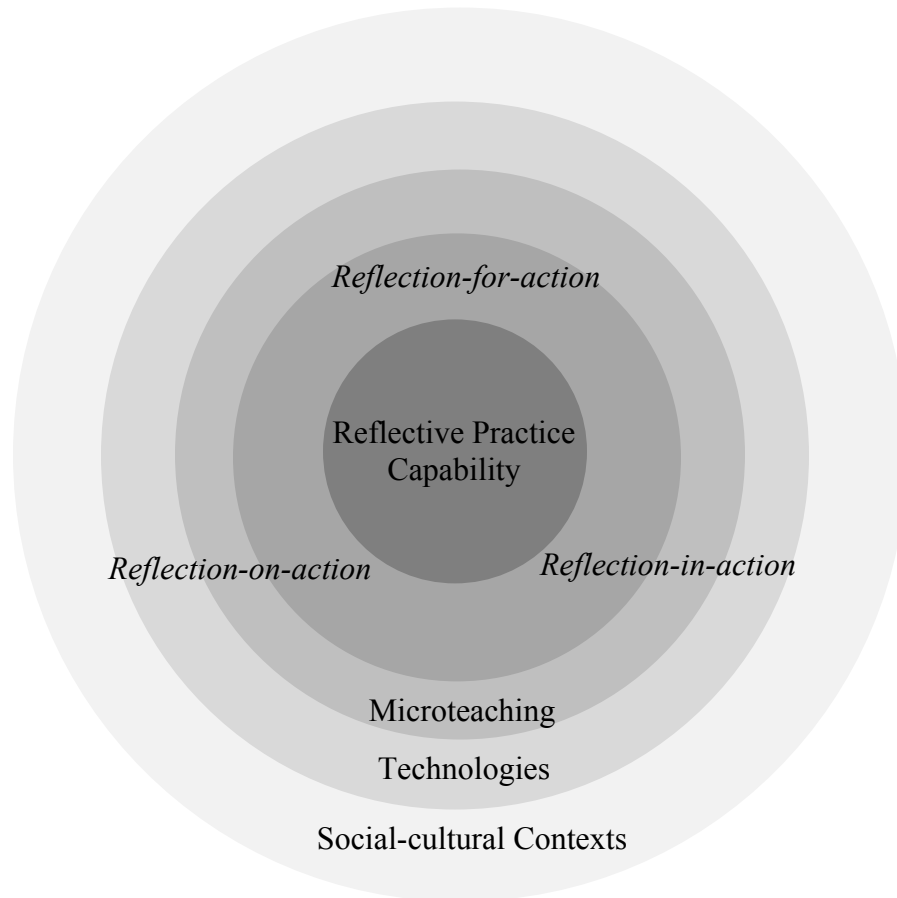
Figure 2.2. Issues of

pre-service teachers' technology-enhanced reflective practice in microteaching

Issue 1: Reflective Practice Capability

In pre-service teachers' technology-enhanced reflective practice in microteaching, reflective practice capability is the most important Issue. As discussed in the literature review above, preparing effective and reflective teachers is a consistent focus in pre-service teacher education (Amobi & Irwin, 2009). This can be demonstrated from two aspects. From the academic aspect, the research literature, from the previous classic studies (Dewey, 1933; Schön, 1983; 1987; Shulman, 1987) to the more recent studies (Makinster et al., 2006), has emphasized the value of reflection practice in pre-service teacher education. From the school administration aspect, reflective practice has become pre-service teachers' professional development requirements. For example, the U.S. National Science Education Standards requires that pre-service teachers should be able to "use various tools and techniques for self-reflection and collegial reflection" (National Research Council, 1996, p. 68). Therefore, reflective practice capability is at the center of pre-service teachers' technology-enhanced reflective practice in microteaching.

Issue 2: Microteaching

The literature (Cruickshank, 1985; Cruickshank & Metcalf, 1993; Metcalf, 1993; Vare, 1994; Cruickshank et al., 1996; Metcalf, et al., 1996) has illustrated that on-campus clinical experiences are an effective training method for pre-service teachers, while microteaching is one of the most important approaches of providing on-campus clinical experiences to pre-service teachers (Amobi, 2005). Reflective practice is one of the important components in microteaching (Macleod, 1987). Therefore, the success of microteaching is measured by how the pre-service teachers in microteaching improve

their reflective practice capability. In other words, microteaching (Issue 2) serves reflective practice capability (Issue 1).

Issue 3-5: Reflection-in-action, Reflection-on-action, & Reflection-for-action

The previous studies (e.g., Macleod, 1987) demonstrated reflective practice is one of the important processes in microteaching. Furthermore, there are three kinds of reflective practice in microteaching, including reflection-in-action, reflection-on-action, and reflection-for-action (Schön, 1987).

Issue 3, Reflection-in-action, happens during the practice, which involves thinking of current experiences, reviewing feelings incurred, and evaluating knowledge being used. (Schön, 1987). It is regarded as most challenging type of reflection practice, because it "goes beyond stable rules - not only by devising new methods of reasoning, but also by constructing new methods of understanding, strategies of actions, and ways of framing problems" (Schön, 1987, p. 39).

Issue 4, Reflection-on-action, refers to the retrospective thinking after the practice, which is that a practitioner investigates what happened during the practice, and the motivations and the rationales for acting in such a specific manner (Schön, 1987).

Issue 5, Reflection-for-action, differs from reflection-in-action and reflection-on-action since it focuses on planning for the future, which usually occurs before the practice (Killion and Todnem, 1991).

The three kinds of reflective practice (Issue 3-5) should not be looked at separately. On the contrary, the continuum of reflection-in-action, reflection-on-action, and reflection-for-action makes reflection "a process that encompasses all time

32

designations, past, present, and future simultaneously" (Killion & Todnem, 1991, p. 15).

Therefore, reflection-in-action (Issue 3), reflection-on-action (Issue 4), and reflection-for-action (Issue 5) work together at the same level, serving microteaching (Issue 2) and reflective practice capability (Issue 1).

Issue 6: Technologies

The previous studies (e.g., Macleod, 1987) showed that pre-service teachers' reflective practice in microteaching is usually assisted by a supervisor and peers' feedbacks. That is to say, pre-service teachers' reflective practice in microteaching is not accomplished individually. On the contrary, it is socially constructed by pre-service teachers with the support from their supervisor and peers. Therefore, how to improve the communications among pre-service teachers, their supervisor, and peers to facilitate pre-service teachers' reflective practice becomes the core of reflective practice in microteaching.

On the one hand, the literature review revealed different technologies contribute to pre-service teachers' reflective practice communication in microteaching. These technologies include e-mails (McLellan, 1998; Whipp, 2003), mailing lists (Wepner, 1997), e-journals (Germann, et al., 2001; F. B. King & LaRocco, 2006; MaKinster et al., 2006), blogs (Oravec, 2003; Ramos, 2004; Williams, 2004; Xie & Sharma, 2004), online chatrooms (Ohlund, et al., 2000; Bauer, 2002), and online discussion forums (Bean & Stevens, 2002; McDuffie & Slavit, 2002; Nicholson & Bond, 2003; Ramos, 2004; MaKinster et al., 2006; Levin, et al., 2006; Yamamoto & Hicks, 2007). On the other hand, the literature review also demonstrated that regardless of what type of technology is used, the technology should always assist pre-service teachers' reflective practice in

microteaching. Therefore, technologies (Issue 6) lie at the outer circle of pre-service above five issues.

Issue 7: Social-cultural Contexts

The literature review in this chapter reveals that the previous studies have rarely discussed pre-service teachers' reflective practice in microteaching in general settings. On the contrary, these studies were usually conducted in specific social-cultural contexts and, therefore, highlighted the impact of social-cultural backgrounds on their research findings. For example, Peng (2008) argued that the social-cultural issue is the key reason why microblog may not be able to be successful in China although it may be popular in North America and Europe.

Such a research perspective is supported by classical social-cultural studies. As the early stage of socio-cultural studies, Dewey (1938) viewed learning as a process of growth through which a person develops knowledge in a social context. Later, Vygotsky (1986) emphasized that the social-cultural context has profound implications for teaching. He argued that a personal's every learning function development appears twice: First, at the social level, it occurs between people (interpsychological). Second, at the individual level, it happens inside of the person (intrapsychological). Therefore, Vygotsky (1986) reached the conclusion that all the high-level learning functions actually originate as relationships between individuals, which suggested that the social-cultural issue plays an important role in pre-service teachers' high-level mental activities, such as reflective practice.

Recently some scholars raised the concept of community of practice (CoP) as a new way of understanding how learning occurs in a specific social-cultural context

(Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991; Wenger, 1998; Baek & Schwen, 2006). Under such a perspective, learners should focus on not only improving their skills and knowledge, but also developing their professional identities by means of participation within their community (Baek & Schwen, 2006). As Wenger (1998) highlighted, in a community of practice, "learning transforms who we are and what we can do; it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming" (p. 215).

More specifically, some scholars examined the social-cultural issue in online learning communities. Zhu (1996) developed a cross-cultural model to identify critical dimensions of cultural variability in relation to online communication tools for education. He argued that "the variability of learning cultures could be an important issue influencing the use of networked learning". Therefore, he suggested that "communication tools can play an important role in mediating the differences of learning cultures" (Zhu, 1996, p. V). Similarly, some other scholars (Barab, MaKinster, & Scheckler, 2004; Schwen & Hara, 2004; Baek & Barab, 2005) found that one of the most significant issues that influences the building and support of an online community is the potential influences of learners' offline cultures. In fact, leaners' offline cultures may be used constructively to contribute to the development of their online learning communities (Barab et al., 2004). That is to say, online learning communities have become a place of throwntogetherness, where the student's local associations blend with their distant connections (Massey, 2005). Therefore, Kendall (1999) strongly advised that educational practitioners should consider the possible influences of learners' offline work environments on their online interactions since "nobody lives only in cyberspace" (p. 70).

Because of such significant influence of social-cultural contexts in pre-service teachers' technology-enhanced reflective practice in microteaching, social-cultural contexts are added as Issue 7, serving all the above six issues.

Summary

The literature review in this chapter demonstrates that various technologies, including e-mails (e.g., Whipp, 2003), mailing lists (e.g., Wepner, 1997), e-journals (e.g., MaKinster et al., 2006), blogs (e.g., Williams, 2004), online chatrooms (e.g., Bauer, 2002), and online discussion forums (e.g., Yamamoto & Hicks, 2007), have positive but different impacts on pre-service teachers' reflective practice in microteaching. At the same time, the previous studies (e.g., Wright, 2010) have also proved that microblog has potentials to contribute to education practices, including pre-service teachers' reflective practice. However, none of the previous studies focused on whether and how microblog has impacts on pre-service teachers' reflective practice in microteaching. Furthermore, although microblog has been widely used in China, very few studies (e.g., Hao, 2011) have been found related to microblog in China's education and usually they provide very limited empirical evidence. Therefore, it is meaningful to conduct this study regarding how the affordances of microblog impact on Chinese K-12 pre-service teachers' reflective practice in microteaching. As Wright (2010) highlighted, "Microblog as a form of expression has gained momentum recently ……while posts responding to this question were often inane and ephemeral, microblog can still be harnessed for research purposes" (p. 259).

CHAPTER THREE

RESEARCH DESIGN

Chapter Two presents the literature review of technology-enhanced pre-service teachers' reflective practice in microteaching. This chapter discusses the details of how to develop a study based on the findings of these previous studies, which are listed in the sections of this chapter, including hypotheses, research questions, research method, research propositions, unit of analysis, case selection, study settings, data collection, data selection, data analysis, analysis validation, research implementation, and researcher role. The summary of the above research design details is presented at the last section of this chapter.

Hypotheses

As the first step of the research design in this study, three hypotheses are developed based on the findings of the previous studies. As indicated by Figure 2.2 in Chapter Two, reflective practice capability (Issue 1) and microteaching (Issue 2) are the two most important issues regarding pre-service teachers' technology-enhanced reflective practice in microteaching. The two issues are at the center, while the other issues are around and support them. That is to say, in order to understand how to improve microteaching (Issue 2) and, eventually, pre-service teachers' reflective practice capability (Issue 1), it is important to examine how to use technologies (Issue 6) to implement reflection-in-action (Issue 3), reflection-on-action (Issue 4), and reflection-for-action (Issue 5) in a specific social-cultural context (Issue 7). Therefore, based on the literature review in Chapter Two, the following three hypotheses are established in this study:

- Hypothesis 1 (targets Issue 6, technologies): The affordances of microblog can contribute to pre-service teacher's reflective practice in microteaching.

- Hypothesis 2 (targets Issue 3, reflection-in-action, Issue 4, reflection-on-action, and Issue 5, reflection-for-action): The affordances of microblog can change the typical process of pre-service teachers' reflective practice in microteaching.

- Hypothesis 3 (targets Issue 7, social-cultural contexts): The social-cultural context has influence on how the affordances of microblog are used in pre-service teachers' reflective practice in microteaching.

Hypothesis 1: The Affordances of Microblog Can Contribute to Pre-service Teacher's Reflective Practice in Microteaching.

On the one hand, the previous studies (Al-Khalifa, 2008; Kroski, 2008; Young, 2008; Reuben, 2009a; 2009b) showed that affordances of microblog have positive impacts in different education settings, such as classroom communications, higher education marketing, and language learning, to name a few. However, based on the literature review in Chapter Two, there were not any previous studies which focused on using microblog in pre-service teachers' reflective practice in microteaching. In other words, there was still little understanding of how the affordances of microblog impact pre-service teachers' reflective practice in microteaching.

On the other hand, the previous studies (Hernández-Ramos, 2004; MaKinster et al., 2006; Yamamoto & Hicks, 2007) also provided indirect evidences to support such a perspective that the unique affordances of microblog have the potentials to contribute to pre-service teachers' reflective practice in microteaching. Hernández-Ramos (2004) found that the combination of blog and online discussion forum had the benefits to pre-

service teachers' reflective practice. Makinster et al. (2006) demonstrated that online forum discussion, especially supported by teacher community, was better than simply private journal writing, and combining both of them could be even better. Yamamoto and Hicks (2007) also used online discussion forum to pre-service teachers' reflective practice in microteaching and demonstrated its positive influence. All of these studies suggested that pre-service teachers' reflective practice could be improved with strengthening online communications with their supervisor and peers. As discussed in Chapter Two, microblog shares similar affordances, such as convenient online communication, with other communication tools, including blog, online discussion forum, and instant messaging. Therefore, it is reasonable to assume that microblog is able to improve pre-service teachers' reflection practice in microteaching somehow just like other online communication tools.

Furthermore, the previous studies (Kwak, et al., 2010; Honeycutt & Herring, 2009; Java et al., 2007) demonstrated that microblog also has its unique affordances, such as light weight and frequent updates, which suggested that the affordances of microblog may have different impacts on pre-service teachers' reflective practice in microteaching although the previous studies have not proven the differences yet.

Hypothesis 2: The Affordances of Microblog Can Change the Typical Process of Pre-service Teachers' Reflective Practice in Microteaching.

As discussed in Chapter Two, generally there are the three types of reflective practice in microteaching: reflection-in-action, reflection-on-action, and reflection-for-action. However, the previous studies (Hernández-Ramos, 2004; MaKinster et al., 2006) suggested that reflection-in-action has been given much less attention compared with

reflection-on-action and reflection-for-action in pre-service teachers' microteaching. As explained in Chapter Two, a typical pre-service teachers' reflective practice in microteaching is that a pre-service teacher attempts to practice a specific teaching skill which is videotaped. Then the supervisor and the peers help the pre-service teacher reflect his or her performance based on the video (Macleod, 1987). Therefore, the typical reflective practice in microteaching primarily occurs before or after the pre-service teacher's practice, which has more attention on reflection-on-action and, sometimes, reflection-for-action.

Such an emphasis on reflection-on-action and reflection-for-action or, in other words, such an ignorance of reflection-in-action, has been revealed by the literature review in Chapter Two. For example, when Makinster et al. (2006) examined using online discussion forum to support pre-service teachers' reflective practice in microteaching, they "were most concerned about examining how these students reflect-on-practice and reflect-for-practice" because it was "very difficult to capture reflection-in-practice by any teacher, especially by using a written retrospective analysis as the basis for reflection" (MaKinster et al., 2006, p. 546).

In another study, Hernández-Ramos (2004) discussed the online communication tools located at both synchronous and asynchronous dimensions (Figure 1). However, in this study, he only examined blogs and online discussion forums, the online communication tools at the asynchronous dimension, for reflect-on-action and reflect-for-action. As what he said at the end of the study, "by getting students to write blogs and participate in online discussions, at least as assessed by the rubric used in this course, the tools were successful in promoting reflective writing" (p.13). Therefore, although

Hernández-Ramos mentioned the online communication tools at the synchronous dimension in his discussion, he did not eventually apply them in his study. The possibility of using the online communication tools at the synchronous dimension for pre-service teachers' reflect-on-action in microteaching has once again been ignored in practice.

Both of the studies suggested that there was little understanding of whether and how the synchronous affordances of the online communication tools contribute to pre-service teachers' reflective practice, especially their reflect-in-action, in microteaching. As introduced in Chapter Two, microblog has the unique affordances, which combine both asynchronous and synchronous communication features (Figure 3.1). That is to say, microblog can not only be used as an asynchronous communication tool for pre-service teachers' reflective practice before and after their microteaching practice (reflect-on-action and reflect-for-action), but also be used as a synchronous communication tool for pre-service teachers' reflective practice during their microteaching practice (reflect-in-action). Therefore, it is plausible to assume that the affordances of microblog are able to change the typical way for pre-service teachers to conduct reflective practice in microteaching by adding synchronous communication features. However, this hypothesis has not been examined by the previous studies.

Public

Blogs   Multiple-way Chat

                                                   Online Whiteboard

Wikis

Online Discussion Forums

E-mail

                    Microblog

Asynchronous ←———————————————————→ Synchronous

                    Mailing Lists

                                        Online Whiteboard

                                        Instant Messaging

Online Discussion Forums   Two-way Chat

Private
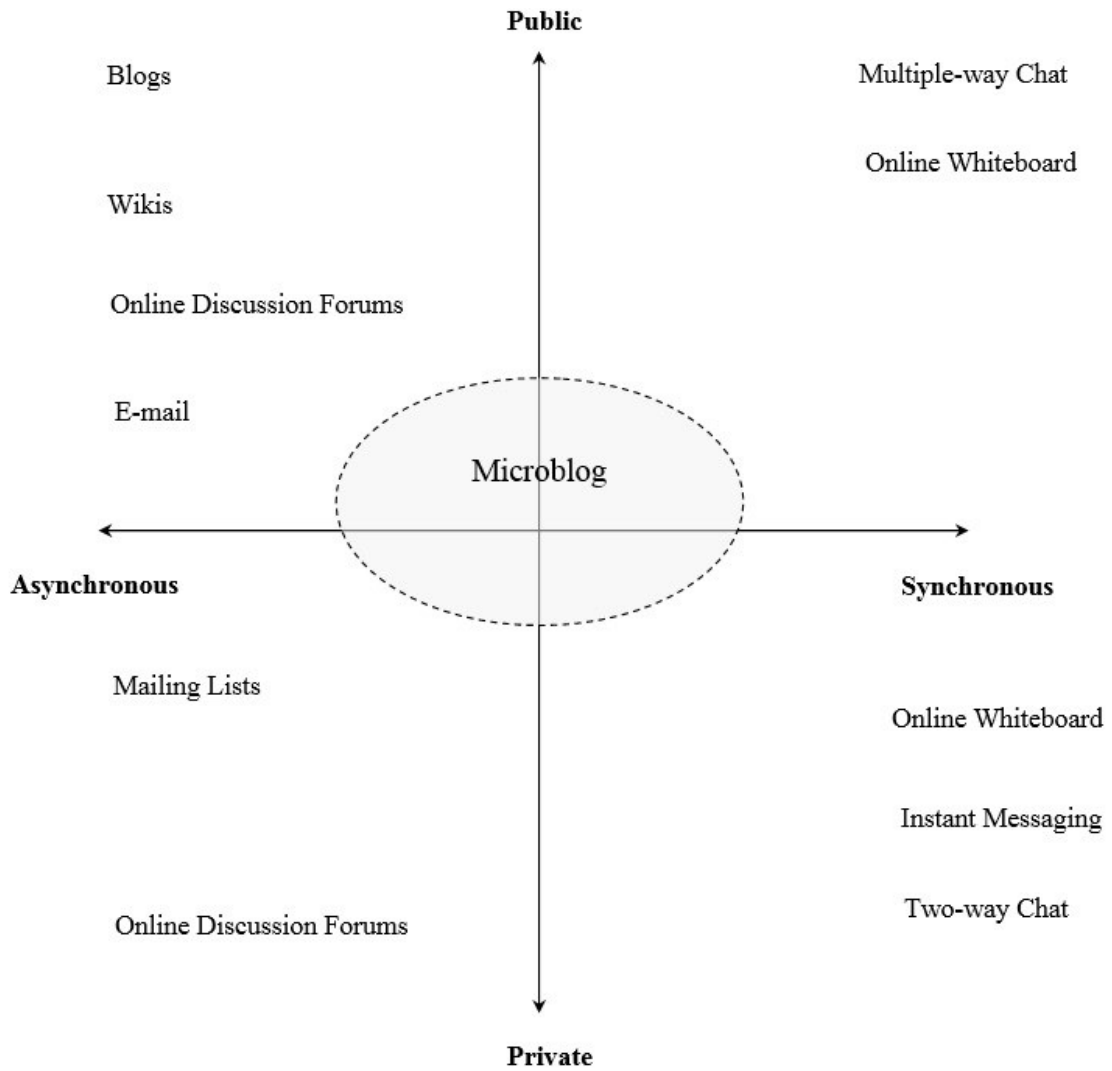
Figure 3.1. Affordances of microblog for

pre-service Teachers' reflective practice in microteaching

(edited based on Hernández-Ramos, 2004)

Hypothesis 3: The Social-cultural Context Has Influence on How the Affordances of Microblog are Used in Pre-service Teachers' Reflective Practice in Microteaching.

The literature review in Chapter Two reveals that the previous studies related to pre-service teachers' reflective practice in microteaching were usually conducted in specific social-cultural contexts and, therefore, highlighted the impact of social-cultural backgrounds on their research findings. Many previous studies supported such a research perspective. For example, Vygotsky (1986) argued that social-cultural contexts have profound implications for teaching, which suggested that the issue of socio-cultural context plays an important role in pre-service teachers' high-level mental activities, such as reflective practice. Baek and Schwen (2006) used the concept of community of practice (CoP) and argued that learners should focus on not only improving their knowledge and skills, but also developing their professional identities by means of participation within their community. Focusing on e-learning, Zhu (1996) emphasized that, because "the variability of learning cultures could be an important issue influencing the use of networked learning", "communication tools can play an important role in mediating the differences of learning cultures" (Zhu, 1996, p. V). More specifically, Peng (2008) argued that the social-cultural issue is the key reason why microblog may not be able to be successful in China although it may be popular in North America and Europe. Although Peng (2008) did not provide any direct evidences to demonstrate that his conclusion can be applied to pre-service teachers' reflective practice in microteaching, his study raised the attention regarding the impact of the social-cultural context on the affordances of microblog in pre-service teachers' reflective practice in microteaching. In a summary, it is understandable to assume that the sociocultural context plays an important

role in how the affordances of microblog are used in pre-service teachers' reflective practice in microteaching although no direct evidences were presented by the previous studies.

Research Questions

After establishing the hypotheses in this study, the next step for the researcher is to define the research questions in this study to test these hypotheses. As indicated by the above three hypotheses, this study aims at having a better understanding of the relationship between the affordances of microblog and pre-service teachers' reflective practice in microteaching, especially in a specific sociocultural context, Chinese K-12 pre-service teachers. Therefore, a primary research question in this study is: *How do the affordances of microblog impact on Chinese K-12 pre-service teachers' reflective practice in microteaching?*

This primary research question can be further divided into the following three research questions, which target the three hypotheses in this study accordingly:

- Research Question 1 (targets Hypothesis 1): How do the affordances of microblog contribute to Chinese pre-service teacher's reflective practice in microteaching?

- Research Question 2 (targets Hypothesis 2): How do the affordances of microblog change the typical process of Chinese pre-service teachers' reflective practice in microteaching?

- Research Question 3 (targets Hypothesis 3): How does the social-cultural context have influence on how the affordances of microblog are used in Chinese pre-service teachers' reflective practice in microteaching?

Research Method

After defining the research questions in this study, the next step for the researcher is to select an appropriate research method. As indicated at the above research questions, this study examines how the affordances of microblog impact on Chinese K-12 pre-service teachers' reflective practice in microteaching. In order to answer these research questions, the multiple-case study method with single unit of analysis is selected as the research method of this study. This section is organized in the following way: First of all, the concept of the case study method is explained. Second, the reasons for why this study selects the case study method rather than the other types of research method are listed. Finally, the reasons for why this study selects the multiple-case study method with single unit of analysis rather than the other types of case study method are presented.

Concept of Case Study Method

There is not a universal definition of the case study method. Because the process of conducting a case study is usually associated with both the unit of study (the case) and the final product of this type of investigation, scholars usually emphasized one or another in their different definitions (Merriam, 1998). For example, Yin (2009) defined the case study method from the research process perspective as he said, "A case study is an empirical study that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 18). Stake (1995) focused on the unit of study (the case) with his definition "Case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances" (p. xi). Merriam (1988) described the case study method in term of its final product, so his definition was that "A

qualitative case study is an intensive, holistic description and analysis of a single instance, phenomenon, or social unit" (p. 21).

Reasons for Selecting Case Study Method

Generally there are five major research methods, including experiment, survey, archival study, history study, and case study (COSMOS Corporation, 1983). Their differences are compared in Table 3.1. The reasons for selecting the case study method rather than the other types of research method are listed as follows.

Table 3.1

Major Research Methods (COSMOS Corporation, 1983)

Method	Form of Research Question	Requires Control of Behavioral Events?	Focuses on Contemporary Events
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	Yes/No
History Study	How, why?	No	No
Case Study	How, why?	No	Yes

First of all, Yin (2009) argued that the research question type of a study has a significant impact on which research method this study should use the research question in this study is the type of "how" question. In general, "what" questions may either be exploratory (any types of the research methods could be used) or about prevalence (survey or the analysis of archival records would be emphasized), while "how" and "why" questions usually favor case study, experiment study, and history study (Yin, 2009). As indicated at the above research questions, this study examines how the affordances of microblog impact on Chinese K-12 pre-service teachers' reflective practice in microteaching. Therefore, case study, experiment study, and history study are more appropriate to this study.

Second, after deciding a "how" question is the core of this study, a further distinction among case study, experiment study, and history study is the extent of the researcher's control of behavioral events in this study (Yin, 2009). Usually an experiment study requires controlling the participants' behaviors while case study or history study does not (Yin, 2009). This study examines the Chinese K-12 pre-service teachers' experiences of using microblog in their reflective practice in microteaching with very limited interventions. Therefore, these Chinese pre-service teachers' behaviors are not be controlled in this study. Under such a circumstance, case study and history study could be the good choices (Yin, 2009).

Finally, focusing on contemporary events or not is the distinction between case study and history study since case study is preferred in examining contemporary events while history study is dealing with the "dead" past (no relevant persons are alive to report) (Yin, 2009). This study explores a current event, Chinese K-12 pre-service

47

teachers' experiences of using microblog in their reflective practice in microteaching. Therefore, a case study method is an appropriate approach for this study.

Reasons for Selecting Multiple-Case Study Method with Single Unit of Analysis

As demonstrated at Figure 3.2, generally there are four types of the case study method, including (1) The single-case study with single unit of analysis, (2) The single-case study with multiple units of analysis, (3) The multiple-case study with single unit of analysis, and (4) The multiple-case study with multiple units of analysis (COSMOS Corporation, 1983). The reasons for selecting the multiple-case study method with single unit of analysis rather than the other types of the research method are listed as follows.

First of all, comparing the single-case design, (1) and (2), with the multiple-case design, (3) and (4), Yin (2009) argued that single-case design approach can only be appropriate in the following situations:

- The critical case in testing a well-formulated theory

- An extreme case or a unique case

- The representative or typical case

- The revelatory case

- The longitudinal case

This study examines Chinese pre-service teachers' experiences of using microblog for their reflective practice in microteaching. The literature review in Chapter Two showed that there was not a well-formulated theory in this field. This is not an extreme case or a unique case. It cannot be judged if this is the representative or typical case since none of the previous studies explored this topic. It is not the revelatory case. It is not the

longitudinal case, either. Therefore, the multiple-case study design, (3) and (4), is the only option for this study. Furthermore, multiple-case studies are generally more powerful than those from a single case alone (Yin, 2009). That is to say, although both single-case study design and multiple-case study design can lead to successful case studies, when a researcher has options and resources, multiple-case study design may be preferred over single-case design (Yin, 2009). Therefore, this study selects the multiple-case method rather than the single-case study method.

Second, comparing (3) The multiple-case study with single unit of analysis with (4) The multiple-case study with multiple units of analysis, Yin (2009) argued that the difference between the two approaches is that (4) The multiple-case study with multiple units of analysis usually involves more than one unit of analysis, such as a hospital case study which may include such units of analysis as the clinical services and staff employed by the hospital. However, this study explores Chinese pre-service teachers' experiences of using microblog for their reflective practice in microteaching. Therefore, each Chinese pre-service teacher is not only a case but also a unit of analysis in this study, which does not embed any smaller units of analysis. In other words, (3) The multiple-case study with single unit of analysis is the appropriate approach for this study.
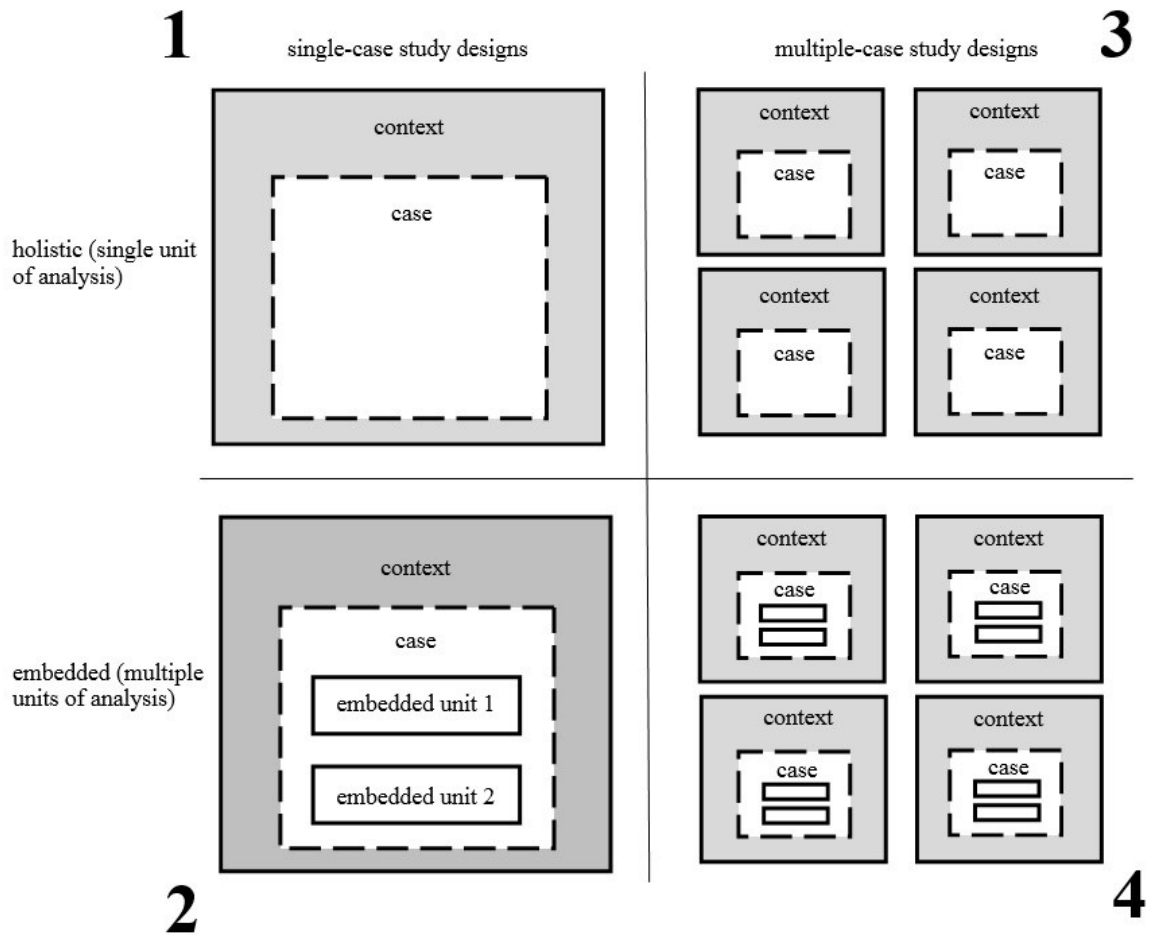
Figure 3.2. Types of case study method (COSMOS Corporation, 1983)

Research Propositions

After selecting an appropriate research method, the next step for the researcher is to establish the research propositions in this study. Generally a research proposition leads the researcher's attention to something that should be examined within the scope of a study (Yin, 2009). As the research questions in this study suggests, "the researcher's attention" of this study is how the affordances of microblog impact on Chinese K-12 pre-service teachers' reflective practice in microteaching, which includes the following three research propositions based on the three research questions in this study:

- Research Proposition 1 (targets Research Question 1): Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.

- Research Proposition 2 (targets Research Question 2): Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.

- Research Proposition 3 (targets Research Question 3): Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.

Unit of Analysis

After establishing the research propositions, the next step for the researcher is to define the unit of analysis in this study. Yin (2009) argued that unit of analysis is another important step in a case study because this step defines a case, or, in other words, a primary unit of analysis in a study. Generally the definition of a unit of analysis is decided by how the researcher in a study defines the research question (Yin, 2009). Since this study examines how the affordances of microblog impact on Chinese K-12 pre-

service teachers' reflective practice in microteaching, a case, or a primary unit of analysis, in this study is defined as a Chinese K-12 pre-service teacher. Furthermore, since this study uses the multiple-case study method with single unit of analysis, the cases in this study (the Chinese K-12 pre-service teachers) does not embed any smaller units of analysis.

Case Selection

After defining the unit of analysis in this study, the next step for the researcher is to select the appropriate cases based on the definition of the unit of analysis. There are eight cases selected for this study. These cases are selected from the K-12 pre-service teachers in a microteaching course at a large teacher education university in China. The reasons for selecting these K-12 pre-service teachers are listed as follows.

First of all, a researcher should focus on whether the cases selected in a study are able to maximize what the researcher can learn rather than whether these cases are "typical" (Stake, 1995). Therefore, it becomes important for the researcher to select cases which are easy to get to and hospitable to the research inquiry because of the restrictions of time and access to prospective informants (Stake, 1995). In this study, the teacher education university is at the researcher's hometown province, the researcher has no difficulty of communicating with the cases in this study (the Chinese K-12 pre-service teachers) by their mother tongue. It is also easy for the researcher to understand their social-cultural backgrounds. Furthermore, the researcher has established a good relationship with the instructor of this microteaching course, so it is convenient for the instructor to assist the researcher to contact and select the qualified Chinese K-12 pre-service teachers as the cases in this study. Therefore, the Chinese K-12 pre-service

teachers in this microteaching course match the recruiting requirement: They are easy to get to and also hospitable to the research inquiry.

Second, case study research is not sampling research: Although it may be helpful to select cases which are typical or representative of other cases, a small sample size is impossible to be a strong representation of others (Stake, 1995). That is to say, the primary obligation in a case study is to understand the cases in the study rather than trying to use these cases to present other cases in a broader context. Therefore, although the Chinese K-12 pre-service teachers in this microteaching course (the cases in this study) may not be representative of other Chinese K-12 pre-service teachers (the cases in the other contexts), they are still meaningful under the case study approach.

Third, although both balance and variety are important for a case study, opportunity to learn should be given the primary consideration (Stake, 1995). In other words, selection by sampling of attributes should not be the highest priority in a case study (Stake, 1995). Therefore, although it is reasonable to assume that these Chinese K-12 pre-service teachers' age, gender, information technologies skills, or some other issue may be varied, which may have influence on their microblog-based reflective practice in microteaching, the cases in this study are not selected by sampling of these attributes.

Fourth, not all the Chinese K-12 pre-service teachers in this microteaching course are recruited in this study. Only the Chinese K-12 pre-service teachers who can help the researcher to maximize his learning are considered as the cases in this study. Therefore, in order to become the cases of this study, the Chinese K-12 pre-service teachers should also match the following two recruiting requirements, besides being in this microteaching course. The first requirement is that the Chinese K-12 pre-service teachers should have

53

enough reflective practice experience with microblog in this microteaching course, which means that they should use microblog throughout the whole course session. The second requirement is that the Chinese K-12 pre-service teachers should be willing to share their reflective practice experiences with the researcher. Only the Chinese K-12 pre-service teachers in this microteaching course who can satisfy the above two requirements are considered as the cases in this study.

Finally, this study uses the multiple-case study method. Therefore, it selects eight Chinese K-12 pre-service teachers (the multiple-case study design) rather than one Chinese K-12 pre-service teachers (the single-case study design) from this microteaching course. The number of eight is decided by how many Chinese K-12 pre-service teachers in this course would like to participate in this study and how many of them are qualified for this study.

<center>Study Settings</center>

After selecting the appropriate cases for this study, the next step for the researcher is to define the study settings for these cases. This study is conducted at a microteaching course at a pre-service teacher education university in China. The eight pre-service teachers in this course are selected to participant in this study, which are labeled as Case A to Case H.

It is importance "to observe and analyze how learners participate and learn in microblog-based environments over the time" (Gao et al., 2012, p. 784). Since there are eight weekly microteaching sessions in this course, the researcher follows through all the sessions. The eight weekly microteaching sessions are labeled as Week 1 to Week 8.

<center>54</center>

The research participants and the instructor use microblog for their reflective practice in microteaching before, during, and after each class session. During each class session, when a research participant is practicing microteaching, the other research participants and the instructor posted their comments in a private microblog group. The projector in the classroom is used to project the private microblog group, so all the people in the classroom, including the research participant who is in microteaching practice, can see the microblog comments immediately.

Data Collection

After establishing the case database, the next step for the researcher is to collect the data from the cases or research participants. This study collects the research data from several different sources of evidence, including the cases or research participants' self-reported satisfaction scores, online interview transcriptions, reflective writings, and microblog postings, which are displayed by Figure 3.3.
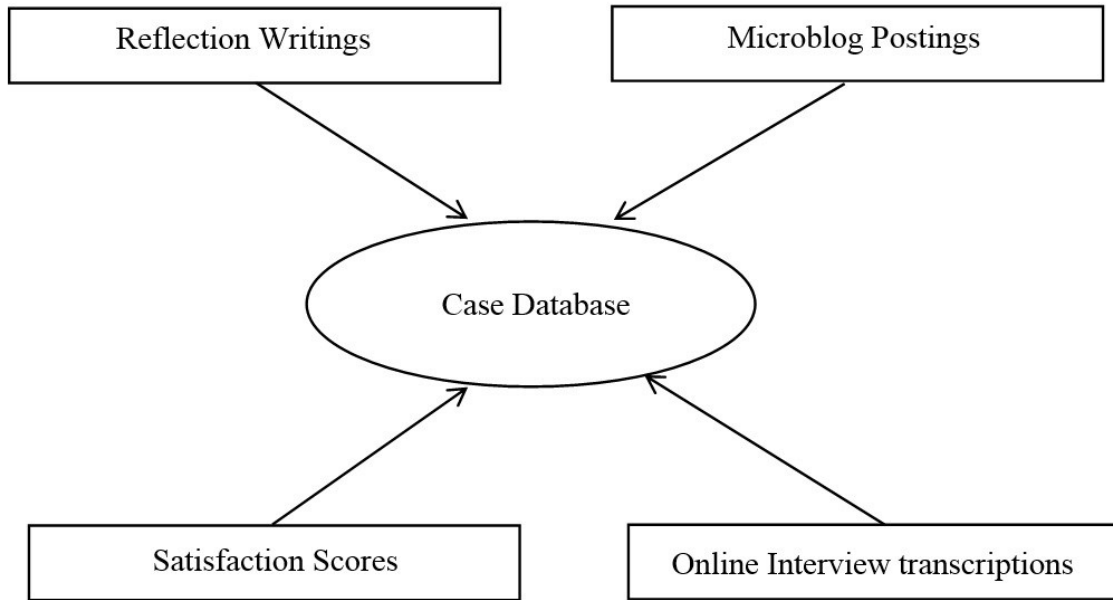
Figure 3.3. Sources of evidence

There are following three reasons for doing so. First of all, there were three major types of data collected in the recent studies of microblog in education, including number of microblog postings, content of posts, and survey or interview responses (Gao, et al, 2012). These previous studies have proved the value of the sources of evidence used in this study.

Second, a major strength of the case study approach is to have the opportunity of using different sources of evidence, and it is also much more important for the case study approach to use multiple sources of evidence compared to other research methods, such as experiment, survey, or history study (Yin, 2009). The most significant advantage of using multiple sources of evidence is the development of converging lines of inquiry, a

process of triangulation, and corroboration of evidences, which makes any case study findings or conclusions more persuasive and accurate (Yin, 2009). Therefore, using different sources of evidence in this study can take full advantage of the strength of the case study method.

Third, the previous studies have discussed how to define and collect the relevant evidence for the studies related to K-12 pre-service teachers' technology-enhanced reflective practice in microteaching. For example, in Makinster et al. (2006)'s study, all the research participants' reflection notes and the associated online discussion transcripts were counted as the sources of evidence. Furthermore, the researchers in the study also conducted post interviews with the research participants to assess their positive and negative perceptions of their reflection practice experiences, feelings of connectedness, influence on their teaching philosophy and practice, and perceptions of the online communication tool, which was another source of evidence in the study. These previous studies suggested that reflective writings, online communication transcripts, and interviews could become the important sources of evidence in the studies regarding K-12 pre-service teachers' technology-enhanced reflective practice in microteaching.

Finally, since this study focuses on Chinese pre-service teachers' experiences, the research participants' attitudes throughout this study have significant impact on the research results. Therefore, besides the sources of evidence cited in the previous studies, the researcher in this study also set up a new source of evidence, the cases or research participants' self-reported satisfaction scores.

Reflective writings

If a research participant has microteaching practice in a class session, he or she submits a reflective writing after the class session. Their reflective writings are in Chinese. The reflective writings are collected by the instructor. The instructor removes the research participants' names and student IDs from the reflective writings and adds their case IDs (Case A to Case H) before forwarding them to the researcher.

Microblog Postings

Besides the traditional face-to-face oral reflective practice in the classroom, the research participants also use microblog for their reflective practice in microteaching before, during, and after each class session. In order to protect the research participants' personal identities, a private microblog group was set up, which only allowed the research participants, the instructor, and the researcher to access. Also for the sake of protecting the research participants' personal identities, all the users in this private microblog group only used their online nicknames rather than their real names. Their microblog postings are in Chinese. Their microblog postings are collected and translated to English by the researcher.

Online Interview Transcriptions

The research participants have weekly one-on-one interviews with the researcher via QQ, (www.qq.com), a popular online instant messaging software in China. There are several advantages of conducting online chatting interviews. First of all, the chatting history saved in the online chatting software can help to avoid transcription mistakes when converting tape-recorded interviews into words. Second, the researcher can

retrieve information quickly from the chatting history during an interview, while it is not easy for a tape-recorded interview. Third, it can also help to protect the research participants' personal identities since their faces or voices will not be revealed during online chatting interviews. Finally, the chatting history can be easily removed from online chatting software after each interview, so there is no risk regarding the data safety.

The online chatting interviews are conducted in Chinese. During the interviews, the research participants are required to describe their experiences of using microblog for their reflective practice in microteaching in as many details as possible. The interview questions are elaborated by the research participants' lay language, and any technology-specific expressions are avoided during the interviews. Furthermore, the dialogue in interviews is initialized by asking such probing questions as "What was it like? How did you feel then? What did it mean to you? And could you say more about …?" (Kvale, 1996). After each interview, its Chinese transcript is translated to English.

Online Interview Transcriptions

The research participants report their weekly satisfaction score regarding how they are satisfied with using microblog in their reflective practice in microteaching to the researcher. Each time the researcher notify the research participants their previous satisfaction scores before they report a new score so that they can compare their current experience with those in their previous weeks.

Case Study Database

In order to document all the data from the different sources of evidence, a case study database is established in this study, which is demonstrated by Table 3.2. The

database includes portfolios named by the case ID (Case A to Case H) and the week ID

(Week 1 to Week 8). For example, the portfolio "A1" indicates that it is the portfolio for

Case A in Week 1. All the data related to Case A during Week 1, including the

satisfaction scores, the online interview transcriptions, the microblog postings, and the

reflective writings, are saved in this portfolio.

Table 3.2

Case Study Database

Week ID	Case ID							
	A	B	C	D	E	F	G	H
1	A1	B1	C1	D1	E1	F1	G1	H1
2	A2	B2	C2	D2	E2	F2	G2	H2
3	A3	B3	C3	D3	E3	F3	G3	H3
4	A4	B4	C4	D4	E4	F4	G4	H4
5	A5	B5	C5	D5	E5	F5	G5	H5
6	A6	B6	C6	D6	E6	F6	G6	H6
7	A7	B7	C7	D7	E7	F7	G7	H7
8	A8	B8	C8	D8	E8	F8	G8	H8

Data Selection

After collecting the data from the different sources of evidence, the next step for the researcher is to select the appropriate data for analysis. As Yin (2009) pointed out, currently there are few fixed formulas in case study data selection, while much of case study data selection depends on a researcher's "own style of rigorous empirical thinking, along with the sufficient presentation of evidence and careful consideration of alternative interpretations" (p.127). However, there are still some useful data selection strategies which can be used by this study, including manipulating preliminary data, relying on theoretical propositions, and using both qualitative and quantitative data. The details are listed as follows.

Preliminary Data Manipulation

At the very beginning of the data selection, the researcher conducts preliminary data manipulation, which includes the following steps:

- Putting the data into different arrays;

- Making a matrix of categories and placing the data within such categories;

- Creating data displays, such as graphics, for examining the data;

- Tabulating the frequency of different events;

- Examining the complexity of such tabulations and their relationship by calculating second-order numbers such as means and variances;

- Putting the data in chronological order or using some other temporal scheme.

(Miles & Huberman, 1994)

This strategy gives the researcher an opportunity to have an overlook of the data, so the researcher knows where and how to start the data selection.

Relying on Theoretical Propositions

After overviewing the data through preliminary data manipulation, the researcher begins to select the data based on the theoretical propositions of this study, which is called relying on theoretical propositions. As the most preferred strategy in case study method, relying on theoretical propositions is to follow the theoretical propositions to select the relevant data (Yin, 2009). This strategy can not only help the researcher pay attention to certain data and ignore other data, but also help to organize the entire case study and to define alternative explanations to be examined (Yin, 2009). In order to apply this strategy, the researcher set up a series of data selection questions around the three research propositions in this study.

- Research Proposition 1: Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching. In order to investigate this proposition, the researcher collects the data related to the research participants' positive experiences of using microblog for their reflective practice in microteaching. Such a type of data can be identified through a series of data selection questions, which are labeled as Q1.1 to Q1.3 and demonstrated by Table 3.3.

Table 3.3

Data Selection Questions for Research Proposition 1

Data Selection Questions	Sources of Evidence
• Did the research participants have a good attitude towards using microblog for their reflective practice in microteaching? (Q1.1)	The research participants' weekly satisfaction scores, online interview transcriptions, microblog postings, and reflective writings
• Did the research participants have a high frequency of using microblog for their reflective practice in microteaching? (Q1.2)	The research participants' microblog postings
• Did the research participants have high-quality reflective thinking when using microblog for their reflective practice in microteaching? (Q1.3)	The research participants' microblog postings, and reflective writings

- Research Proposition 2: Chinese K-12 pre-service teachers change their typical reflective practice in microteaching. In order to investigate this proposition, the researcher collects the data related to when and how frequently the research participants use microblog for their reflective practice in microteaching. Such a type of data can be identified through a series of data selection questions, which are which are labeled as Q2.1 to Q2.3 and demonstrated by Table 3.4.

Table 3.4

Data Selection Questions for Research Proposition 2

Data Selection Questions	Sources of Evidence
• Did the research participants use microblog to conduct reflective practice before microteaching? How often? (Q2.1)	The research participants' online interview transcriptions and microblog postings
• Did the research participants use microblog to conduct reflective practice during microteaching? How often? (Q2.2)	The research participants' online interview transcriptions and microblog postings
• Did the research participants use microblog to conduct reflective practice after microteaching? How often? (Q2.3)	The research participants' online interview transcriptions and microblog postings

- Research Proposition 3: Chinese K-12 pre-service teachers experience unique sociocultural influences when using microblog in their reflective practice in microteaching. In order to investigate this proposition, the researcher collects the data related to how the research participants' social-cultural backgrounds impact their experiences of using microblog for their reflective practice in microteaching. Such a type of data can be identified through a series of data selection questions, which are labeled as Q3.1 to Q3.4 and demonstrated by Table 3.5.

Table 3.5

Data Selection Questions for Research Proposition 3

Data Selection Questions	Sources of Evidence
• Did the research participants connect China's social or cultural issues with their experience of using microblog for their reflective practice in microteaching? (Q3.1)	The research participants' online interview transcriptions and microblog postings
• Did the research participants connect their school settings with their experience of using microblog for reflective practice in microteaching? (Q3.2)	The research participants' online interview transcriptions and microblog postings
• Did the research participants connect their microteaching course settings with their experience of using microblog for reflective practice in microteaching? (Q3.3)	The research participants' online interview transcriptions and microblog postings
• Did the research participants connect their personal life experiences with their experience of using microblog for their reflective practice in microteaching? (Q3.4)	The research participants' online interview transcriptions and microblog postings

Finally, the researcher summarizes all the above data selection questions, which become the guidance for the researcher to search for the related data from the sources of evidence. These data selection questions are demonstrated by Table 3.6.

Table 3.6

Summary of Data Selection Questions

Research Proposition	Data Selection Questions
1. Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.	• Did the research participants have a good attitude towards using microblog for their reflective practice in microteaching? (Q1.1) • Did the research participants have a high frequency of using microblog for their reflective practice in microteaching? (Q1.2) • Did the research participants have high-quality reflective thinking when using microblog for their reflective practice in microteaching? (Q1.3)
2. Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.	• Did the research participants use microblog to conduct reflective practice before microteaching? How often? (Q2.1) • Did the research participants use microblog to conduct reflective practice during microteaching? How often? (Q2.2) • Did the research participants use microblog to conduct reflective practice after microteaching? How often? (Q2.3)

3. Chinese K-12 pre-service teachers experience unique sociocultural influences when using microblog in their reflective practice in microteaching.	• Did the research participants connect China's social or cultural issues with their experience of using microblog for their reflective practice in microteaching? (Q3.1) • Did the research participants connect their school settings with their experience of using microblog for reflective practice in microteaching? (Q3.2) • Did the research participants connect their microteaching course settings with their experience of using Microblog for reflective practice in microteaching? (Q3.3) • Did the research participants connect their personal life experiences with their experience of using microblog for their reflective practice in microteaching? (Q3.4)

Using both Qualitative and Quantitative Data

Yin (2009) argued that it is possible for case studies to include substantial quantitative data, especially when the quantitative data can explain the outcomes of a case. Therefore, this study uses both qualitative and quantitative data. Since there are only eight research participants in this study, the quantitative data from such a small sample size do not provide any explanations at the statistical level. However, they are able to provide a different perspective of understanding the research participants' experiences besides the qualitative data.

In this study, the qualitative data include the research participants' reflective writings, microblog postings, and online interview transcriptions. The quantitative data include the research participants' weekly satisfaction scores regarding how they use microblog for their reflective practice in microteaching, their reflective writing grades, and their microblog posting grades. The details of the quantitative data are listed below.

- Weekly Satisfaction Scores: Each week the research participants report how they are satisfied with using microblog in their reflective practice in microteaching. The satisfaction score range is from 0 to 10.

- Research Participants' Reflective writing Grades: The research participants submit their reflective writings after each microteaching practice. These reflective writings are collected and graded based on the Framework for Reflective Thinking (Sparks-Langer, Simmons, Pasch, Colton, & Starko, 1991), which is demonstrated by Table 3.7. The framework includes seven levels of reflective thinking, from the lowest level "1" (No descriptive language) to the highest level "7" (Explanation with consideration of ethical, moral, political issues). The grades

71

represent the research participants' reflective thinking quality, or the outcome of

using microblog to conduct reflective practice in microteaching.

- Research Participants' microblog posting Grades: Each week the research participants use microblog to conduct reflective practice. Their microblog postings are also graded based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991)

Table 3.7

Framework for Reflective Thinking

(Sparks-Langer, Simmons, Pasch, Colton, & Starko, 1991)

Level	Description
1	No descriptive language
2	Simple, layperson description
3	Events labeled with appropriate terms
4	Explanation with tradition or personal preference given as the rationale
5	Explanation with principle or theory and consideration given as rationale
6	Explanation with principle/theory and consideration of context factors
7	Explanation with consideration of ethical, moral, political issues

Data Analysis

After selecting the appropriate data from the different sources of evidence, the next step for the researcher is to conduct the data analysis. Although there are many case study data analysis techniques available, the research selects time-series analysis, pattern matching, cross-case synthesis, and logic model as the data analysis techniques of this study, which are discussed in details as follows.

Time-series Analysis

Time-series analysis is the first analysis technique used in this study. This analysis technique focuses on "the match between the observed (empirical) trend and either of the following: (a) a theoretically significant trend specified before the onset of the investigation or (b) some rival trend, also specified earlier" (Yin, 2009, p. 146). Since there are eight weekly microteaching sessions, the researcher uses the time-series analysis to compare each case's patterns during the eight weeks and find out if there are any pattern changes throughout this study, which is demonstrated by Table 3.8.

Table 3.8

Time-Series Analysis

Week ID	Case ID							
	A	B	C	D	E	F	G	H
1	A1	B1	C1	D1	E1	F1	G1	H1
2	A2	B2	C2	D2	E2	F2	G2	H2
3	A3	B3	C3	D3	E3	F3	G3	H3
4	A4	B4	C4	D4	E4	F4	G4	H4
5	A5	B5	C5	D5	E5	F5	G5	H5
6	A6	B6	C6	D6	E6	F6	G6	H6
7	A7	B7	C7	D7	E7	F7	G7	H7
8	A8	B8	C8	D8	E8	F8	G8	H8

Pattern Matching

Pattern matching is the second analysis technique used in this study. Yin (2009) argued that pattern matching is one of the most favored data analysis techniques in case studies. The researcher uses this data analysis technique to compare the selected data with the research propositions. There are the following several steps of implementing this technique.

- Step 1: Open coding (Strauss & Corbin, 1990). The researcher looks through the selected data for each case and identifies the key phrases. In order to become the key phrases, the words or the sentences have to not only be related to the research propositions, either support or reject the research propositions, but also show up frequently in the data. At the end of this step, the researcher can collect all the key phrases of each case.

- Step 2: Patterns identification (LeCompte & Preissle, 1993). Based on the key phrases of each case collected at the last step, the researcher organizes them by different patterns.

- Step 3: Patterns and research propositions matching (Yin, 2009). As indicated by the section of research propositions, there are the three research propositions. After the researcher has the patterns of each case, the researcher compares the patterns with the research propositions. If the data match the research propositions, the researcher can confirm the research propositions, while, if the data fail to match the entire pattern with the research propositions, the initial research propositions should be revised accordingly.

Cross-case Synthesis

Cross-case synthesis is the third analysis technique used in this study. Yin (2009) argued that, when there are at least two cases in a case study, cross-case synthesis is likely to be easier, and its findings are likely to be more persuasive than those from the analysis of a single case. In order to implement this analysis technique, the researcher following the following steps to establish the themes of this study (Miles & Huberman, 1994), which is demonstrated by Table 3.9:

- Lay out the patterns from all the cases or research participants in this study;

- Compares these patterns across the cases;

- Searches for the similar patterns among these cases or research participants;

- Establishes the themes from these similar patterns.

Table 3.9

Cross-Case Synthesis

Week ID	Case ID							
	A	B	C	D	E	F	G	H
1	A1	B1	C1	D1	E1	F1	G1	H1
2	A2	B2	C2	D2	E2	F2	G2	H2
3	A3	B3	C3	D3	E3	F3	G3	H3
4	A4	B4	C4	D4	E4	F4	G4	H4
5	A5	B5	C5	D5	E5	F5	G5	H5
6	A6	B6	C6	D6	E6	F6	G6	H6
7	A7	B7	C7	D7	E7	F7	G7	H7
8	A8	B8	C8	D8	E8	F8	G8	H8

Logic model is the last analysis technique used in this study. Logic model is to stipulate a complex chain of events over a period of time (Peterson & Bickman, 1992; Rog & Huebner, 1992). This technique focuses on revealing cause-effect-cause-effect pattern, where a dependent variable (event) at an earlier stage becomes the independent variable (causal event) for the following stage (Peterson & Bickman, 1992; Rog & Huebner, 1992). In this study, the researcher uses the technique of logic model to identify the cause-effect-cause-effect pattern based on the summary of the findings from all the cases in this study.

Analysis Validation

In order to strengthen the data analysis validation of this study, the researcher applies the following several approaches, including triangulation, peer review, member check, and disclosure of researcher bias.

- Triangulation (Merrian, 1998): The researcher uses multiple sources of evidence. As discussed at the section of data collection, this study collects the research data from different sources of evidence, including the cases or research participants' reflective writings, microblog postings, and online interview transcriptions.

- Peer review (Lincoln & Guba, 1985): The researcher discusses the research findings with other researcher colleagues and asks for the comments. Their feedbacks are used to make negotiated adjustments and conclusions.

- Member check: The researcher reports the research findings to the cases or research participants in this study and asks for the comments. Their feedbacks are used to make negotiated adjustments and conclusions.

- Disclosure of researcher bias. Although the researcher adopts some strategies, which are discussed at the session of research role below, the personal bias is difficult to avoid in this study. Therefore, at the end of this study, the researcher reflects the personal experiences to investigate if any researcher bias has significant influence on the research findings.

Research Implementation

From preparing the study to reporting the final results, this study is implemented by the following five major steps, which are displayed by Figure 3.4:

- Step 1: Preparation. The researcher communications with the university, the microteaching course instructor, and the Chinese K-12 pre-service teachers in the microteaching course. The qualified Chinese K-12 pre-service teachers are selected as the cases in this study. At the end of this step, a case database is established with the eight cases, from Case A to Case H.

- Step 2: Data Collection. The researcher collects the data from the cases, including their reflective writings, microblog postings, and online interview transcriptions, and saved in the case database.

- Step 3: Data Selection. The researcher selects the appropriate data from the case database, and re-organized the selected data for Step 4.

- Step 4: Data Analysis. The researcher applies the appropriate analysis strategies to interpret the selected data.

- Step 5: Reporting. The researcher summarizes the findings from the case data analysis.
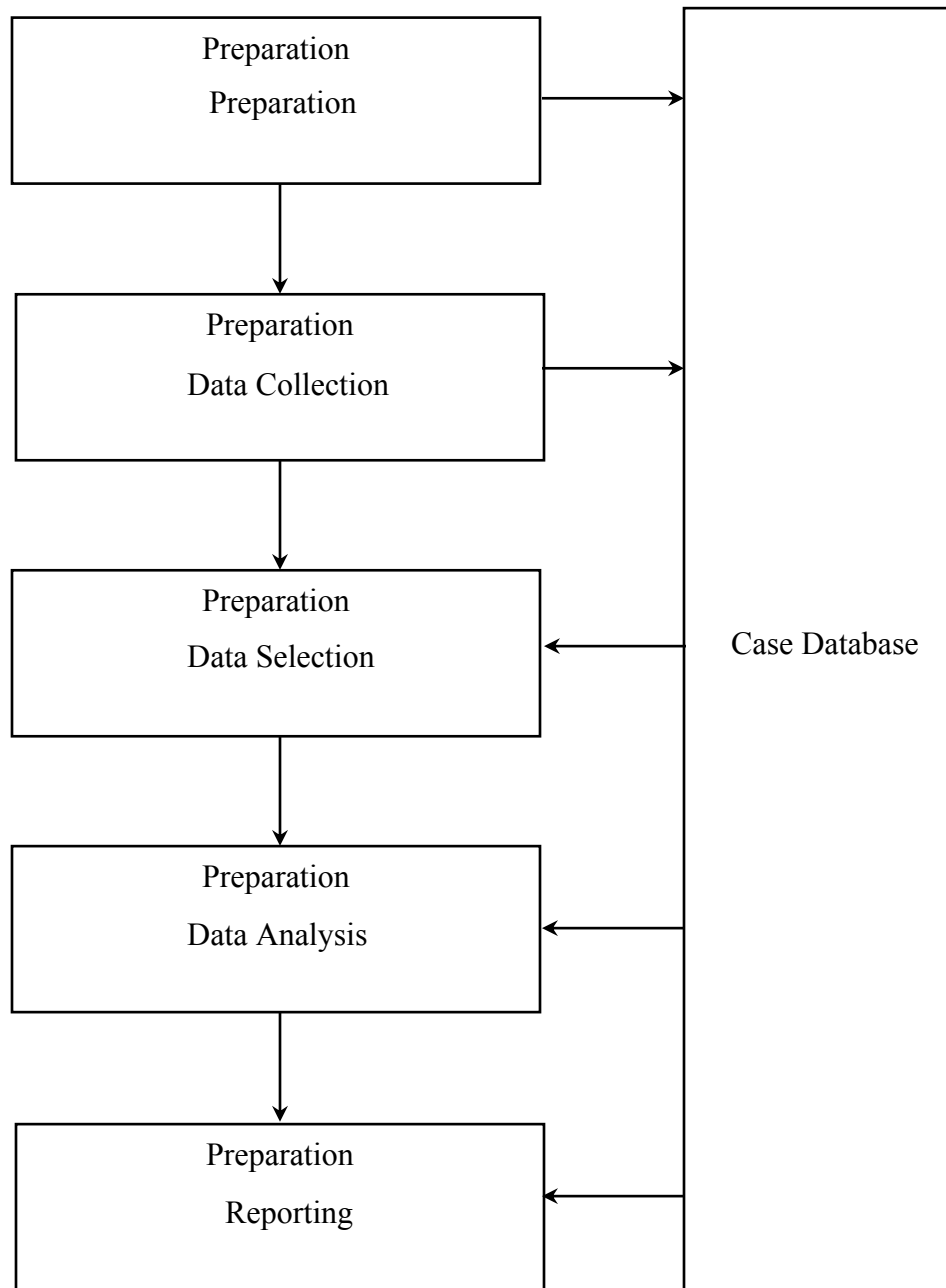
Figure 3.4. Research implementation

Researcher Role

Although a case study does give a researcher the flexibility of exploring the real world without fixed frameworks or disciplines, it, at the same time, also requires the researcher to have a clear understanding of the requirements of being a researcher in a case study. These requirements are listed as below.

First of all, the researcher should be able to ask the research participants good questions and have an open mind to interpret answers (Yin, 2009). Although case studies data collection usually follows a well-defined protocol, some specific information that may become relevant to a case study is not readily predictable (Yin, 2009). Therefore, case studies usually require a researcher to keep an inquiring mind during data collection, not just before or after the activity (Yin, 2009). In order to do so, the researcher should be able to let one tentative answer immediately lead to a series of new questions, which may eventually lead to some significant inquiry about how or why the world works as it does (Yin, 2009).

Second, the researcher should be able to be a good listener (Yin, 2009). Here "listening" means receiving information through multiple modalities rather than just using the aural modality, so a good listener means that the researcher should be able to digest a large amounts of information at the same time, hearing the exact words used by a research participants, capturing the research participant' mood and affective components, and understanding the context from which the research participant is perceiving the world (Yin, 2009).

Third, the researcher should be able to exercise adaptiveness and flexibility (Yin, 2009). Very few case studies end up exactly as planned, so the researcher may have to

make major (e.g., identify new cases for the study) or minor (e.g., pursue an unexpected information inquiry) changes during the study (Yin, 2009). Therefore, it is very important for the researcher to remember the original goal of the study while being willing to adapt alternatives if unanticipated events occur (Yin, 2009).

Fourth, the researcher should be able to have a firm grasp of the research issues (Yin, 2009). Because case study data collection is not merely a matter of recording data in a mechanical fashion, as it is in some other types of research, the researcher should be able to interpret the evidence as it is being collected and to identify instantly if there are contradicts, which may suggest that further investigation is needed (Yin, 2009).

Last but not least, the researcher should be able to avoid bias (Yin, 2009). Because the researcher needs to understand the research issues in advance, all of the preceding conditions will be negative if a researcher only seeks to use a case study to substantiate a preconceived perspective (Becker, 1967). Therefore, the researcher should hold his existing theoretical and experiential knowledge, personal preferences, and expectations that could interfere with an open-minded description of what happens in the reality (Yin, 2009).

Summary

As illustrated by Figure 3.5, at the beginning of this chapter, three hypotheses are established based on the literature review in Chapter Two. In order to explore these hypotheses, three research questions are developed accordingly for this study. In order to answer these research questions, the multiple-case study method with single unit of analysis is selected as the primary research method of this study. As one of the important steps of the case study approach, three research propositions are established to match the

research questions of this study. Based on these research propositions, a series of case selection questions are developed accordingly to guide the researcher to search for the relevant data from several sources of evidence, including the research participants' satisfaction scores, interview transcripts, microblog postings, and reflective writings. After completing the data collection, the data analysis is conducted by several data analysis techniques, including pattern matching, time-series analysis, cross-case synthesis, and logic model.
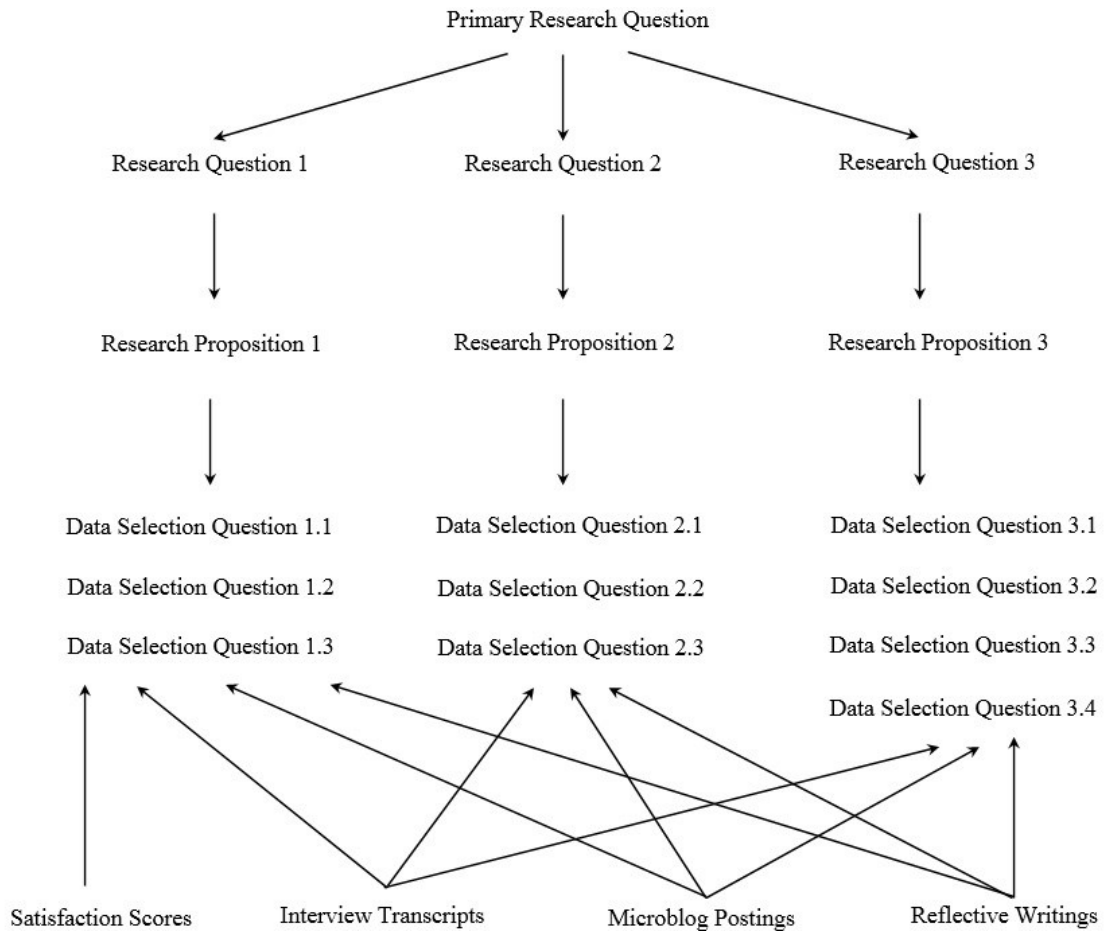
Figure 3.5. Summary of research design

CHAPTER FOUR

RESULTS

Chapter Three discusses the details of the research design of this study. This chapter presents how to follow the data analysis techniques provided in the above chapter to exam the data and report the findings. The details are presented in the sections of this chapter. The first section introduces the study context, which provides a basic understanding of how this study was conducted at the research site. Since there are eight cases in this study, the following eight sections discuss the eight cases individually. There are the following three steps in each of these sections: (a) At the very beginning, the background of a case is introduced. (b) The case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. (c) The findings from the case are summarized at the end of the section. After examining the eight cases, the following section uses the technique of cross-case synthesis and the technique of logic model to explore the findings of all the eight cases. The technique of cross-case synthesis is applied to identify the common ground of these cases, while the technique of logic model is implemented to develop a logic chain of how Chinese pre-service teachers use microblog for their reflective practice in microteaching. The last section presents the summary of all the findings from this study.

Context

This study was conducted at a large university in a southwestern province in China. This university mainly offered higher education to Chinese K-12 school pre-service teachers. It had approximately 35,000 full-time students, including about 32,000 full-time undergraduates and 3,000 graduate students. It had 18 colleges and around 3,000 faculty and staff, including 770 professors and associate professors.

As one of the colleges at the university, the College of Physics and Electronic Engineering had several graduate programs, including the M.Ed. program in Curriculum & Instruction with the focus on Physics Education, and the M.S. program in Subject Education with the focus on Physics Education. The M.Ed. program was a two-year program which emphasized training K-12 educational practitioners, while the M.S. program was a three-year program which emphasized training K-12 educational researchers.

There was a microteaching course in the college, which had 16 pre-service teachers and one instructor. All the pre-service teachers in this course came from either the M.Ed. program in Curriculum & Instruction with the focus on Physics Education or the M.S. program in Subject Education with the focus on Physics Education. This microteaching course was one of the mandatory courses in the two programs. Among these pre-service teachers, eight of them agreed to participant in this study, who are labeled as Case A to Case H. The summary of all the case profiles is presented by Table 4.1.

Table 4.1

Summary of Case Profiles

Case	Gender	Age	Hometown	Undergraduate Program	Graduate Program	Previous Microteaching Experience	Previous School Teaching Experience	Previous IT Experience
A	Female	23	A city in Sichuan Province	Physics Education	M.Ed. in Curriculum & Instruction	Yes but did not well	3 months	Lot
B	Female	23	A city in Shanxi Province	Physics Education	M.Ed. in Curriculum & Instruction	Yes and did well	5 months	Some
C	Female	22	A city in Shanxi Province	Physics Education	M.S. in Subject Education	Yes and did well	3 months	Lot
D	Female	25	A city in Guizhou Province	Biomedical Engineering	M.Ed. in Curriculum & Instruction	No	5 months	Little
E	Female	24	A village in Shanxi Province	Physics Education	M.Ed. in Curriculum & Instruction	Yes and did well	3 months	Lot
F	Female	25	A city in Gansu Province	Educational Technologies	M.Ed. in Curriculum & Instruction	No	No	Little
G	Male	26	A village in Hainan Province	Physics Education	M.Ed. in Curriculum & Instruction	Yes but did not well	2 months	Some
H	Male	23	A village in Sichuan Province	Physics Education	M.S. in Subject Education	Yes and did well	7 months	Lot

The microteaching course had nine weekly class sessions, including the first class session for the introduction and the class arrangement, and the other eight class sessions for the pre-service teachers' microteaching practice. The researcher followed the eight class sessions for microteaching practice, which are labeled as Week 1 to Week 8 in this study.

87

During the eight microteaching practice class sessions, the research participants had the opportunity of performing microteaching in every other week. Therefore, they usually had a total of four microteaching practices during the microteaching course. During each microteaching practice, a research participant had about 10-15 minutes to conduct microteaching. The instructor allowed the research participants to choose any teaching topics from the K-12 Physics textbooks. The instructor also allowed the research participants to use a same teaching topic for more than once in their microteaching. Besides the microteaching practice arrangement, the eight research participants and the instructor also used microblog for their reflective practice in microteaching before, during, and after each class session.

Sina Weibo, (新浪微博, www.weibo.com), a Twitter-style microblog website in China, was used for this study. A microblog example on Sina Weibo is displayed by Figure 4.1. There were the following three reasons for choosing this website. First of all, Twitter (www.twitter.com), the most popular microblog website in the world, was blocked in China according to Chinese government's Internet censorship policy. Second, most of the research participants in this study could not use English effectively for microblog, so they had the language barrier of using any English microblog websites. Finally, Sina Weibo has been one of the most well-known Chinese microblog websites in China, and some of the research participants in this study had used it for personal purposes before this study.

Figure 4.1. Sina Weibo

For the concern of privacy, a private group was set up on Sina Weibo for this study, which only allowed the research participants, the instructor, and the researcher to access. Also for the sake of privacy, all the users in this private microblog group only used their online nicknames rather than their real names.

The microteaching weekly class sessions were hold at a microteaching classroom at the college. The microteaching classroom had a blackboard, a white screen, and a teacher computer connected with a projector. Since there was only one white screen available, the research participants only used the blackboard to teach while reserving the white screen for projecting the microblog postings. There was also the wireless network

in the microteaching classroom, so all the people in the classroom were able to use either laptops or smart phones to access the private microblog group on Sina Weibo.

Sina Weibo did not automatically refresh its pages quickly. In order to let all the people in the classroom see the microblog postings projected on the white screen immediately, when a pre-service teacher was conducting microteaching practice, there was another person, the teacher computer controller, who used the teacher computer to refresh Sina Weibo manually and frequently.

Additionally, in order to follow the microblog postings for each pre-service teacher easily, the teacher computer controller was also responsible for posting a notification on Sina Weibo at the beginning of each research participant' microteaching practice, such as "[A research participant's online nickname] begins to teach now ……". The off-stage research participants and the instructor posted their microblog messages as the replies of this notification. At the same time, the research participant who was conducting microteaching practice on the stage used the short breaks, such as when the "students" were thinking about questions and when "students" were doing small group assignments, to look at the microblog postings projected on the white screen. The classroom settings are displayed by Figure 4.2.
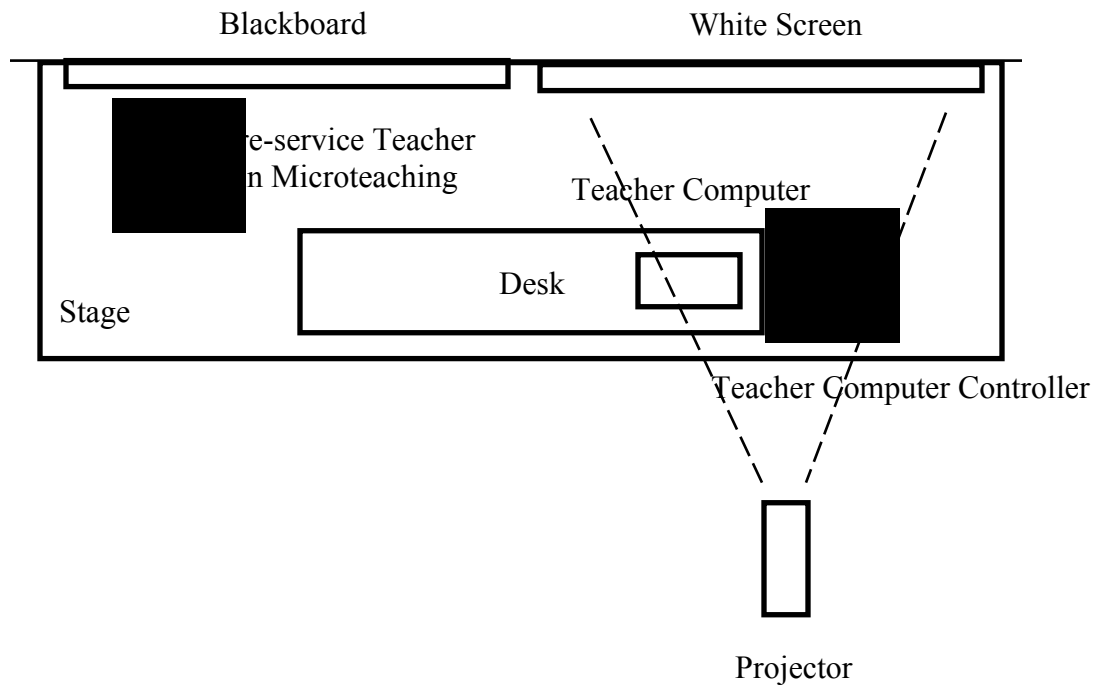
Figure 4.2. Microteaching classroom settings

Case A

This section discusses Case A through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case A was a 23-year-old female pre-service teacher from a city in Sichuan Province in China. This was her first year in the M.Ed. program in Curriculum & Instruction with the focus on Physics Education.

Case A's undergraduate major was Physics Education. She did not choose this major in her university application. The university decided this major for her. It is common in China that, when a student does not have a high National University Admission Exam score to go to his or her favorite major in a university, the student has the option to agree to be assigned to any other majors by the university. However, she found later that she actually liked Physics Education and wanted to keep learning. She said, "Studying makes me love my life more."

Case A had the microteaching experience in her undergraduate study. She was not sure if she wanted to be a K-12 school teacher at that moment. Therefore, she did not take that microteaching course seriously. However, later she wanted to be a K-12 school teacher, so she really appreciated the current microteaching course in her graduate program. She said, "Certainly I will work very hard in this course." She defined reflective practice as a process of thinking through strengths and weaknesses. She said, "I clearly understand my weaknesses." But she also thought that her reflective practice capability was just at the average level compared with her classmates. Regarding the relationship between teaching and reflective practice, she believed that reflective practice was very important for a teacher. But she also agreed that actually she did not understand the relationship between teaching and reflective practice very well.

Case A had the pre-service teaching experience in a high school for three months to teach Physics. She found that teaching in a real classroom was very different from microteaching. She said,

> The instructor and the students [in a microteaching class] cannot represent the students in a real classroom……We could not possibly go back to the time when we know nothing. The topics we are teaching in microteaching are what all we know, so the answers from the students [in a microteaching class] are so different from the students in a real classroom.

Therefore, she believed that the interactions in microteaching were not the ones in a real classroom.

Case A planned to be a K-12 school teacher when receiving her graduate degree. She wanted to do something different compared with traditional Chinese K-12 school teachers. She said, "I want to be well educated with a sense of humor." She knew that it was not easy to do so but she would like to try her best.

Case A used computers and smart phones often although she still called herself "IT dummy". When she used computers and smart phones, she more liked to play video games or surf the Internet.

Case A's hobbies included singing and reading.

Q1.1: Did the research participant have a good attitude towards using microblog for her reflective practice in microteaching?

Case A reported her weekly satisfaction scores regarding using microblog for her reflective practice in microteaching. In Week 6, she was absent from the microteaching

class to go to an important program meeting, so she did not want to report her satisfaction score for that week. The result is displayed by Figure 4.3. It was found that, Case A had a low satisfaction score at the beginning of this study. However, during the following weeks, her satisfaction score increased significantly. At the end of this study, her satisfaction score was at a much higher level.
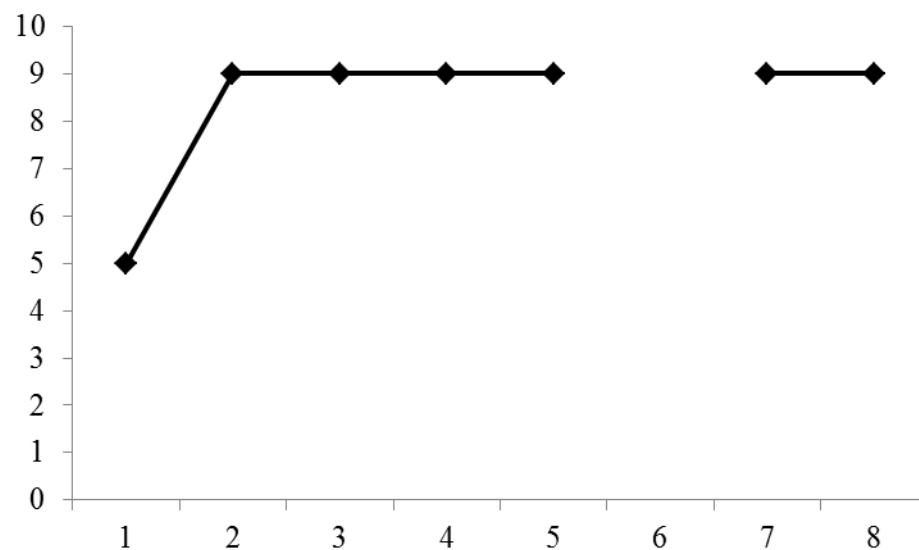
Figure 4.3. Case A weekly satisfaction scores

Although the above weekly satisfaction scores may suggest that Case A had a very good attitude towards using microblog for her reflective practice in microteaching, the findings from Case A's interviews told us a different story. In Week 1, on the one hand, Case A expressed a good attitude towards using microblog for her reflective practice in microteaching. She said, "I feel that microblog is very good. Through

microblog we can know the currently hottest topics in the society, while QQ [a popular online instant messaging software in China] can only be used to keep in touch with our friends." She also said, "[I can use microblog] to find out my strengths and weaknesses." On the other hand, Case A also found that it was not easy to use microblog in microteaching since she could not use her cell phone to see the private microblog group on Sina Weibo. Furthermore, she also compared Microblog with QQ, as she said, "Because of the slow refreshing speed of microblog, we can see the messages showing on microblog much more slowly than those showing on QQ." She also said,

> Chatting on QQ does not require a very good cell phone network, and it can be done just by normal cell phones. But now, when we use microblog, especially the private microblog group, we have to use high-end cell phones in a good cell phone network in order to see the messages refreshing instantly. If the network is not good, [we] cannot even receive any [microblog] messages.

However, Case A did not feel too frustrated because of this. She said, "When we know more about microblog, the results should be better."

Such a good attitude continued in Week 2 and Week 3. In Week 2, Case A felt that all her classmates were even more excited about using microblog in microteaching. She believed that such a change came from that they knew microblog much better after a week. Therefore, she said, "It is all about getting skilled." In Week 3, Case A still felt the excitement of using microblog in microteaching, but she also found that most of the comments on microblog were either positive, such as "You are so cool!", or encouraging, such as "Cheer up!" Therefore, she thought that she could not identify her weaknesses from these postings.

95

Case A's attitude changed since Week 4. She felt much more frustrated. She said, "[Because of the network problem in the microteaching classroom], most of us were unable to post comments on microblog immediately, so microblog did not play its role in the classroom." Additionally, she felt that there were too many positive and encouraging postings but too few comments about her weakness, which actually she really wanted to see on microblog. Such a kind of frustration continued in the following three weeks. In Week 8, as the end of this study, Case A showed much less passion of using microblog for her reflective practice in microteaching. She agreed that microblog made it possible for her to work closely with her peers and instructor. However, at the same time, she hoped that she could have received much more comments about her weaknesses.

Furthermore, from Case A's postings on microblog, it was also found that, in Week 1 and Week 2, Case A showed much more excitement about using microblog in microteaching. For example, during the two weeks, she used a lot of happy emotional icons in her postings, such as:

😭

…… 😭😭😭 ……

…… 😳😳😳 ……

…… 😮😮 ……

However, these happy emotional icons disappeared in her microblog postings in the following weeks.

Q1.2: Did the research participant have a high frequency of using microblog for her reflective practice in microteaching?

It was found that Case A did not have a high frequency of using microblog throughout this study. Figure 4.4 demonstrates that she had a total of 28 microblog postings, which means 3.5 microblog postings per week. The figure also shows that her weekly microblog posting number changed dramatically over the eight weeks, from 0 to 7.
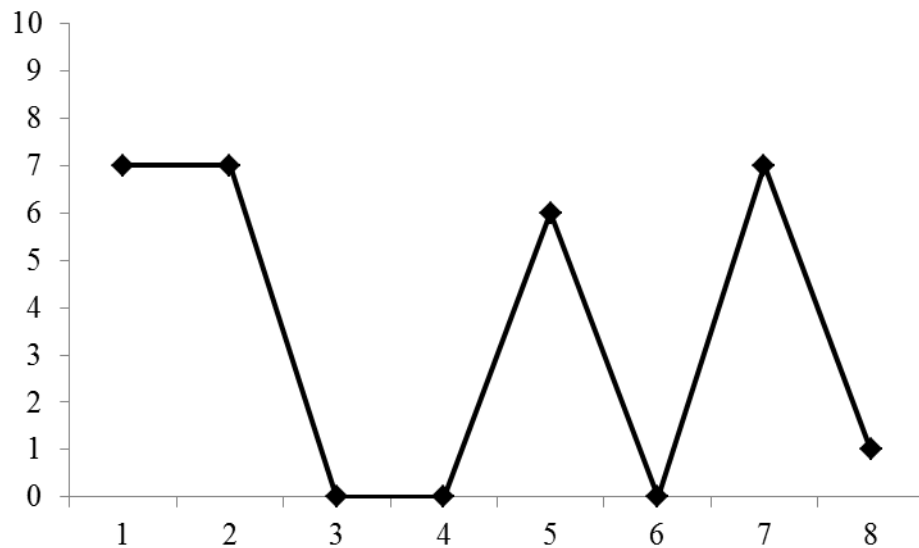
Figure 4.4. Case A's weekly microblog posting numbers

Q1.3: Did the research participant have high-quality reflective thinking when using microblog for her reflective practice in microteaching?

Based on her reflective writings, Case A had middle-level reflective thinking during this study. Case A had four microteaching practices throughout this study, and she

filed a reflective writing for each practice. These reflective writings are graded based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991), which is introduced in Chapter Two (Table 3.7). In all the reflective writings, she used appropriate terms, such as "extended knowledge". Furthermore, she also connected her personal background with her microteaching performance reviewing process, such as "I did not know high school curriculum very well". Therefore, as illustrated by Figure 4.5, her reflective writings were listed at Level 4 ("explanation with tradition or personal preference given as the rationale") reflective thinking throughout this study.

Additionally, compared with her reflective writings, most of her microblog postings only had Level 2 ("simple, layperson description") reflective thinking, such as "Good handwriting!" and "You are so cool!" Furthermore, her microblog postings also showed that she used emotional icons and the reply function on microblog sometimes but she never used any more complex microblog functions, such as the # symbol or hashtag, which is used to mark keywords in a microblog posting so that microbloggers can categorize microblog postings easily.
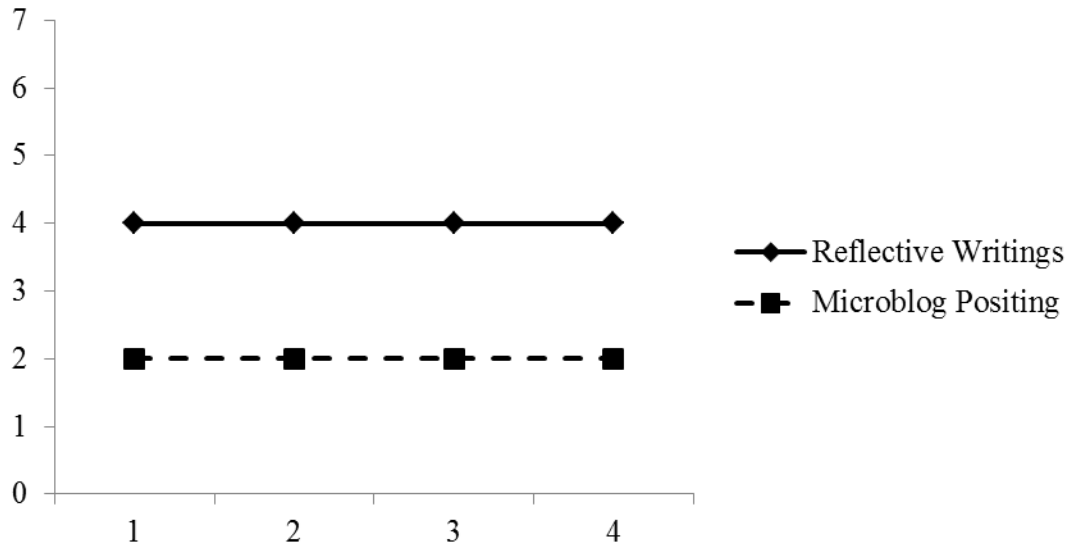
Figure 4.5. Case A reflective thinking levels

Q2.1: Did the research participant use microblog to conduct reflective practice before microteaching? How often?

Case A rarely used microblog to conduct reflective practice before microteaching. Figure 4.6 illustrates that she had only 1 reflection-for-action (the reflection practice happened before the class) microblog postings, which means about 0.1 reflection-for-action microblog postings per week. It accounted for 3.6% of her total microblog postings.
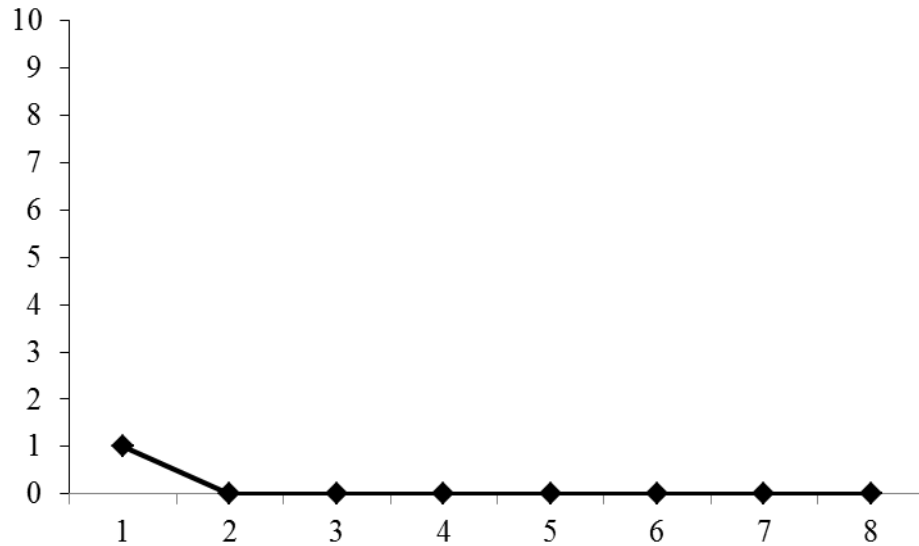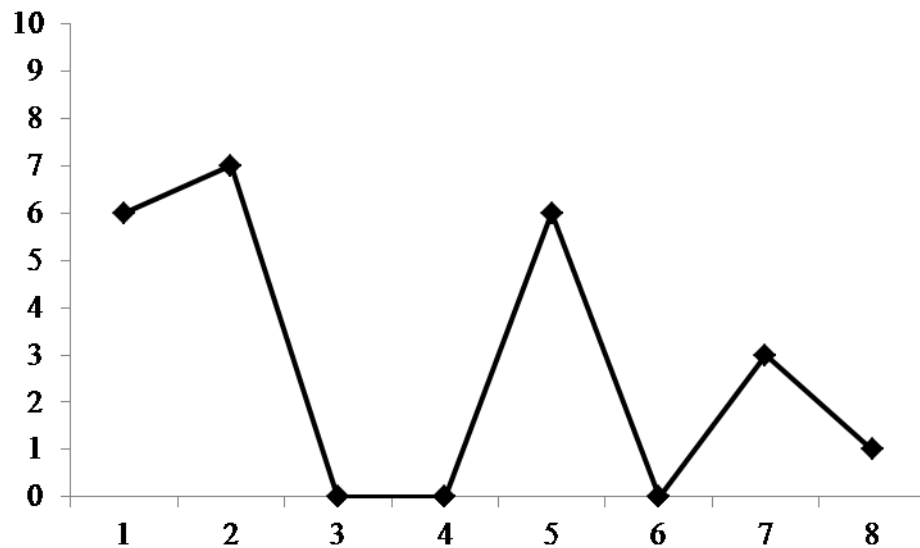
Figure 4.6. Case A weekly reflection-for-action microblog posting numbers

During the interviews, Case A talked about her experience of using microblog before microteaching. In Week 2, she suggested that she had to deal with personal health issues so that she was unable to post anything on microblog before the class. In Week 3, she mentioned that her laptop was unfortunately broken so that she had to borrow her roommate' laptop once a while. Therefore, she rarely used microblog before the class. In Week 4, she pointed out that she disliked using microblog before the class simply because she could not get the responses right away. She said,

> I cannot wait in front of my laptop to find out if my classmates or instructor will
> provide me the help. If the questions which I ask on microblog, for some reasons,
> cannot be answered in time, I just waste my time.

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

Case A used microblog to conduct reflective practice during microteaching but not often. Figure 4.7 illustrates that she had 23 reflection-in-action (the reflection practice happened during the class) microblog postings, which means about 2.9 reflection-in-action microblog postings per week. They accounted for 82.1% of her total microblog postings. Figure 4.7 also demonstrates that, although her reflection-in-action microblog posting number changed significantly over the eight weeks, she gradually decreased her reflection-for-action postings.

Figure 4.7. Case A weekly reflection-in-action microblog posting numbers

During the interviews, Case A talked about her experience of using microblog during microteaching. In Week 1, she believed that theoretically using microblog when teaching on the stage was possible, but in reality it did not work for her. She was so nervous that she could only focus on what she was teaching. She said,

I did not pay too much attention to microblog because I was very nervous. My teaching skills were not good enough [to look at microblog while teaching] so that I could only had a glimpse of microblog postings [when I was teaching] and I could not see them clearly.

In Week 2, she said, "It takes more time for us to integrate looking at microblog comments while teaching because this is a brand-new training model." She also mentioned that she tried to microblog on her cell phone but her cell phone could not connect the Internet. Therefore, she could not post her comments in time when she was off stage watching her classmates' microteaching.

In Week 3 and Week 4, she thought that she was still too nervous to integrate microblog and microteaching. She said,

I was just trying to finish my microteaching as soon as possible ... ... Because my teaching skills were not good enough, I could not possible pay attention to microblog while teaching ... ... It was not because I did not want to look at microblog. It was simply because I just could not.

She also said, "Even if I could have looked at microblog [to know my teaching problems], I would be too nervous to have any changes at that moment."

Q2.3: Did the research participant use microblog to conduct reflective practice after

microteaching? How often?

Case A rarely used microblog to conduct reflective practice after microteaching.

Figure 4.8 illustrates that she had only 4 reflection-on-action (the reflection practice

happened after the class) microblog postings, which means 0.5 reflection-on-action

microblog postings per week. They accounted for 14.3% of her total microblog postings.

Figure 4.8 also shows that all her reflection-on-action microblog postings were in Week

7.
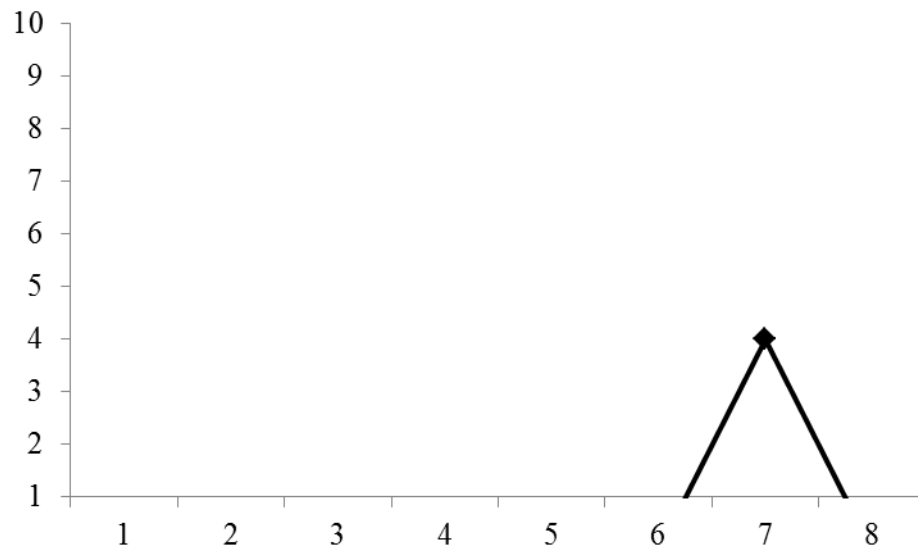
Figure 4.8. Case A weekly reflection-on-action microblog posting numbers

During the interviews, Case A talked about her experience of using microblog

after microteaching. On the one hand, Case A recognized the importance of reflection-on-

action. She even asked the researcher, "Why should reflection not happen after teaching?" However, on the other hand, she thought that she had challenges of using microblog after the class. She said, "Both my laptop and the Internet connection at my residence were broken, and I could not use my cell phone to access the Internet, either." Furthermore, she mentioned that she had too many personal issues to deal with.

Q3.1: Did the research participant connect China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching?

Case A rarely connected China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching. Only one thing which she mentioned was that Chinese culture had more focus on harmony and collaboration so that she would like to have more positive rather than negative comments on microblog.

Q3.2: Did the research participant connect her school settings with her experience of using microblog for her reflective practice in microteaching?

Case A connected her school settings with her experience of using microblog for her reflective practice in microteaching. She consistently complained about the poor Internet connection at the university throughout this study. In Week 1 and Week 2, she mentioned that she could not refresh the microblog web pages immediately because the network in the microteaching classroom was not good. In Week 3, she said, "The wireless network at my university was broken. We could hardly use the Internet. How could we access microblog?" In the following weeks, she also consistently talked about how bad the Internet connection at the university was.

Q3.3: Did the research participant connect her microteaching course settings with her experience of using microblog for her reflective practice in microteaching?

Case A connected her microteaching course settings with her experience of using microblog for her reflective practice in microteaching. Case A mentioned that, besides microblog, she did not have other communication opportunities with her classmates or instructor after the class. She rarely met the instructor. She said that, if she had any questions about her microteaching, she usually talked with her roommates who happened to be her classmates in this microteaching course. Therefore, she agreed that microblog gave her an opportunity of talking with her classmates and instructor outside of the class.

Q3.4: Did the research participant connect her personal life experience with her experience of using microblog for her reflective practice in microteaching?

Case A connected her personal life experience with her experience of using microblog for her reflective practice in microteaching. First of all, Case A had a mixed feeling about microblog, which had impact on how she used microblog for her reflective practice in microteaching. On the one hand, she liked microblog. She said, "I like to visit microblog whenever I have the access to the Internet. Also, every time when I have nothing to do, I like to use cell phone to visit microblog." Furthermore, when she found any interesting microblog postings, such as travel stories, funny jokes, and restaurant reviews, she liked to forward them to her friends. On the other hand, however, she still preferred cell phone or QQ to keep in touch with her friends. She thought that using microblog among friends did not require replying immediately. If she wanted her friends to reply right away, she usually used QQ or cell phone instead. She did not know Twitter. She had a microblog account on Sina Weibo for about one or two years, but she did not

want to spend time on posting her updates there. She also knew some other Chinese microblog websites, but she never used them. Therefore, in Week 7, she said, "Classrooms should be where teachers and students communicate directly. I mean the verbal communication rather than the communication via microblog."

Second, Case A thought that her few microblog postings in microteaching could be explained by her limited teaching skills. In Week 1, Case A said, "Because my teaching skills are not good. I am still a beginner. I have no right to comment on others' teaching skills." In Week 4, she said, "I really feel that my classmates do very well in teaching, so I really do not know how to talk about their weaknesses."

Finally, she also believed that her personality shaped how she used microblog for her reflective practice in microteaching. She disliked online self-expression. In Week 4, she said,

You can find out that I rarely post anything [online] ... ... I usually just go to read others' postings ... ... I am not good at expression on microblog, which is not easy to change. This is just my personal habit ... ... I more like to use telephones ... ... [and] ask questions in person.

She also mentioned that it may not be a good idea to use microblog for her reflective practice in microteaching. She said,

Should I use microblog [for the reflective practice in microteaching microteaching]? Every time when I visit microblog, I like to read [random] postings there. Therefore, it is not good for me. I cannot concentrate when I visit

microblog. This is just for me. If someone else dislikes reading [random] postings on microblog, it should be good.

Case Summary

Table 4.2 demonstrates the following findings from Case A: First of all, Case A's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case A had the mixed positive and negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, she expressed a good attitude. Although she found that it was not easy to use microblog in microteaching, she did not feel too frustrated. In the middle of this study, she felt that all her classmates were even more excited, but she also found that most of the microblog comments were positive or encouraging. At the end of this study, she felt much more frustrated and much less passion. She felt that there were too few comments about her weakness. Furthermore, although she had the high satisfaction scores of using microblog for her reflective practice in microteaching during this study, she did not have a high frequency of using microblog for her reflective practice in microteaching. Her reflective writings and microblog postings also showed that she did not have the high-level reflective thinking or use any complex microblog functions throughout this study.

Second, Case A's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case A changed her typical reflective

practice in microteaching in this study. She rarely conducted reflection-for-action or reflection-on-action. But she conducted much more reflection-in-action.

Finally, Case A's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case A experienced the unique sociocultural influences when using microblog for her reflective practice in microteaching. Regarding China's social-cultural issues, she thought that Chinese culture had more focus on harmony and collaboration. Regarding the school settings, she consistently complained about the poor Internet connection at the university. Regarding the course settings, she admitted that, besides microblog, she did not have other communication opportunities with her classmates or instructor after the class. Regarding the personal life experience, she thought that she liked microblog but still preferred QQ or cell phone. She believed that she had limited teaching skills. She also thought that she disliked online self-expression, and she could not concentrate on study when using microblog.

Table 4.2

Case A Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• using microblog was a good idea • inconvenient to use microblog for microteaching • not too frustrated ↓ • we were more excited • few weakness comments ↓ • more frustrated • less passionate • few weakness comments	mixed positive and negative experience
	Q1.2	the low frequency of using microblog	
	Q1.3	the middle to low-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	rarely conducted reflection-for-action	changed typical reflective practice in microteaching
	Q2.2	conducted reflection-in-action but not often	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	Chinese culture focused on harmony and collaboration	unique social-cultural influences
	Q3.2	the poor Internet connection at the university	
	Q3.3	the little after-class communication except microblog	
	Q3.4	preferred other communication tools the limited teaching skills disliked online self-expression could not concentrate on study when using microblog	

Case B

This section discusses Case B through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case Background

Case B was a 23-year-old female pre-service teacher from a city in Shanxi Province in China. This was her first year in the M.Ed. program in Curriculum & Instruction with the focus on Physics Education.

Her undergraduate major was Physics Education. She chose this major because she loved the subject. She decided to have graduate education since she believed that more knowledge could help her find a better job in the future.

She had the microteaching experience in her undergraduate program. She believed that microblog was very important, especially for the students with limited teaching experience like her. She thought that she did pretty well in that microteaching course. She thought that reflective practice was to find out where her strengths and weaknesses were after microteaching, why they existed, and how to keep the strengths while avoiding the weaknesses in order to become a better teacher. Regarding the relationship between teaching and reflective practice, she believed that reflective practice

could help to improve her teaching skills. She said, "I criticize my own teaching performance seriously", but she also agreed that sometimes she did not recognize all her weaknesses until others pointed them out. She also said, "I thought too little about my microteaching, and I did not write reflection notes often."

She had the pre-service teaching experience in a high school for five months to teach Physics. She found that teaching in a real classroom was different from teaching in a microteaching course. One of the biggest differences for her was that the students in a microteaching course were "fake", who could not represent the students in a real teaching environment. Additionally, she also found that the biggest challenge of teaching in a real K-12 course was that she could not predict her students' responses, which she believed required a teacher to have the instant response capability and the class management capability.

She planned to be a K-12 school teacher after receiving her graduate degree. She wanted to be a good teacher with a sense of humor. She wanted to be a teacher who students like. She wanted to be her students' friend.

She used computers and smart phones sometimes.

Singing was one of her hobbies.

Q1.1: Did the research participant have a good attitude towards using microblog for her reflective practice in microteaching?

Case B reported her weekly satisfaction scores for using microblog for her reflective practice in microteaching throughout this study. In Week 6, she was absent from the microteaching class to go to an important program meeting, so she did not want

to report her satisfaction score for that week. The result is displayed by Figure 4.9. It was found that Case B had a high satisfaction scores throughout this study, although there were some small changes during the middle weeks.
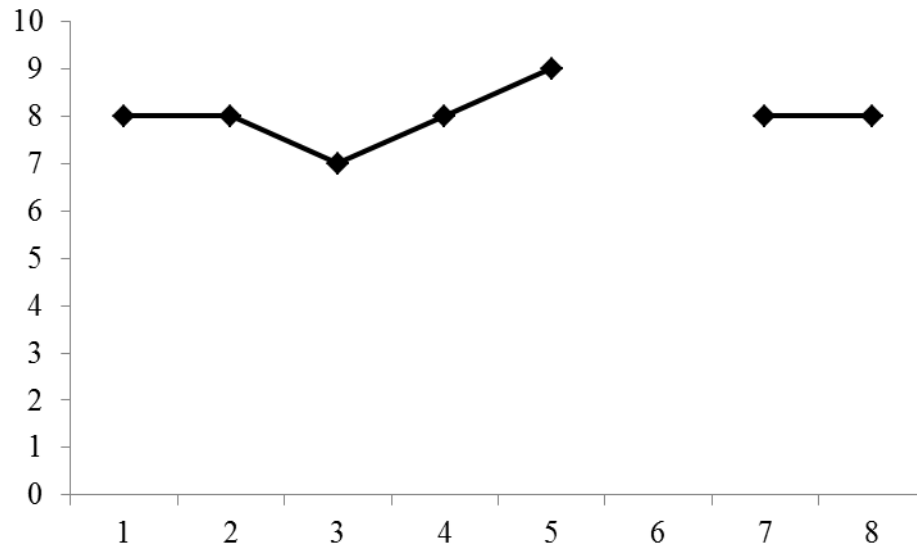
Figure 4.9. Case B weekly satisfaction scores

Compared with the above weekly satisfaction scores, Case B's interviews revealed a different story. She did not have a consistent attitude towards using microblog for her reflective practice in microteaching. At the beginning of this study, Case B was excited and curious about how to use microblog for her reflective practice in microteaching. In Week 1, she said, "Theoretically it is not a bad idea." At the same time, she also found that many classmates just opened their microblog accounts. She said, "Since the Internet connection was not good and not all the classmates were familiar with microblog, it was

really a mess for us to figure out how to do this at the very beginning." However, she was not discouraged, as she said, "This was our first time ...... The next week should be better ... ... since it is a process which takes some time for us to learn." Additionally, in her reflective writing in Week 1, she said,

> Theoretically, I feel that [using microblog for the reflective practice in microteaching] is pretty good, but its implementation seemed not to be in order. Perhaps we were not familiar with microblog. I was a little nervous when teaching, so I forgot looking at microblog [while doing microteaching]. [After microteaching,] I read my classmates and instructor's comments on microblog, [I agreed that] all [the comments] pointed out the problems [in my microteaching].

However, Case B's attitude changed significantly in the following weeks. In Week 2, she thought that most of the people in the class were more skilled at using microblog, but she also found the inconvenience of microblog. She said, "I feel that it is not so easy to use microblog since we have to keep refreshing microblog web pages manually. It takes so much trouble to let the people see the refreshed microblog postings." Furthermore, regarding the contents, she thought that there were mostly encouraging postings, while she hoped to see more criticism. But she agreed that she did not know how to criticize others because of her limited teaching skills.

In Week 3, another issue came out, which even lowered Case B's attitude towards using microblog for her reflective practice in microteaching. Case B found that the Internet connection in the microteaching classroom was very bad, which made it very difficult for her to use microblog. In her reflective writing in Week 3, she said,

113

The initial purpose of using microblog for the reflective practice in microteaching is good, but it seems that it is not convenient to use. Because [we have to] frequently refresh the web pages, it has impact on the timing of receiving instant comments. Furthermore, when we post microblog comments, we cannot work with the classmate in microteaching very well. [Therefore,] the atmosphere of the microteaching classroom seems not too active. Regarding my personal opinion, maybe it is better to switch to another medium, such as QQ.

In Week 4, Case B thought that she usually had very few personal opinions about her classmates' microteaching so that it was difficult for her to make comments or provide suggestions to the others. Furthermore, she said, "Even sometimes I made my comments, nobody responded. It was very awkward. "

In Week 5, although Case B admitted, "Perhaps microblog is a good tool for introvert classmates", she also thought that she had no special favor for using microblog for her reflective practice in microteaching. She said,

I do not think that there are differences among different ways of doing reflection. I can write down my oral reflection, and publish it by microblog, QQ, or Email. Therefore, I feel that all are the same ... ... My attitude [towards using microblog for the reflective practice in microteaching] is neutral. I feel that I can use it or not, so I cannot say if I like it or not.

In Week 6 and Week 7, Case B consistently stated that she would like to ask her roommates, who happened to also be her classmates, in person rather than posting any questions on microblog. She said, "Sometimes I posted my questions on microblog but

nobody answered me. I do not want to do again. It is much more convenient to ask the people in my dorm." In addition, in her reflective writing in Week 7, she said,

We have used microblog [for the reflective practice in microteaching] for a while. Regarding the result, I cannot say that there was no effect but it seemed that [the effect] was not so obvious. Furthermore, I am still thinking that, if we have to use a medium to assist the reflection in microteaching, QQ is more practical, more efficient, and [we are] more skilled about it.

In Week 8, as the end of this study, she reached the lowest attitude towards using microblog for her reflective practice in microteaching, as she said,

I am not excited about microblog at all. It is just a medium ... ... I do not feel that it is necessary to discuss on microblog. Everybody can meet one another every day, [so] any questions can be discussed in person ... ... I still believe that it is better to use QQ.

From Case B's postings on microblog, it was found that, she demonstrated her enthusiasm about using microblog in microteaching. In Week 1, she posted, "Haha, hehe, I am coming" and "Guys, let's talk [on microblog]". In Week 3, she posted, "Guys, please give me some comments [on microblog] after you get home! I hope that you will give me a lot of criticism!!!" However, such a type of microblog postings could not be found in the following weeks.

Q1.2: Did the research participant have a high frequency of using microblog for her reflective practice in microteaching?

It was found that Case B had a slightly high frequency of using microblog throughout this study, Figure 4.10 demonstrates that she had a total of 59 microblog postings, which means about 7.4 microblog postings per week. The figure also shows that her weekly microblog posting number changed dramatically over the eight weeks, ranging from 0 to 13.
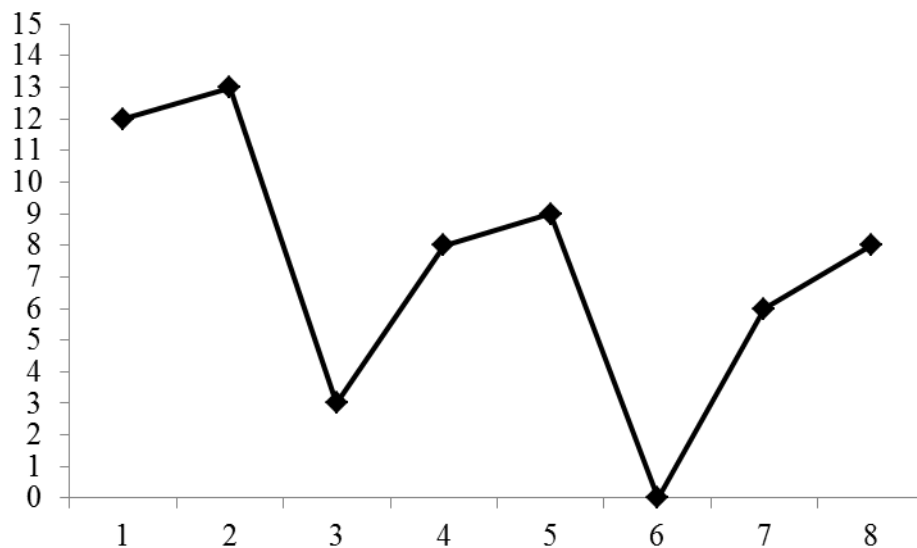
Figure 4.10. Case B weekly microblog posting numbers

Q1.3: Did the research participant have high-quality reflective thinking when using microblog for her reflective practice in microteaching?

Based on her reflective writings, Case B had middle-level reflective thinking during this study. Case B had four microteaching practices throughout this study, and she filed a reflective writing for each practice. The grading result based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991) is displayed by Figure 4.11. The figure showed that her reflective writings had Level 4 ("explanation with tradition or personal preference given as the rationale") reflective thinking throughout this study. For example, in her first reflective writing, she wrote, "I planned to introduce the background knowledge in a more interesting way in microteaching, but later I found that I had too limited knowledge, especially about the history of Physics."

Additionally, compared with her reflective writings, most of her microblog postings only had Level 2 ("simple, layperson description") reflective thinking, such as "Your instructional design has a clear structure." Furthermore, her microblog postings also showed that she rarely used emotional icons and the reply function on microblog but she never used any more complex microblog functions, such as the # symbol or hashtag.
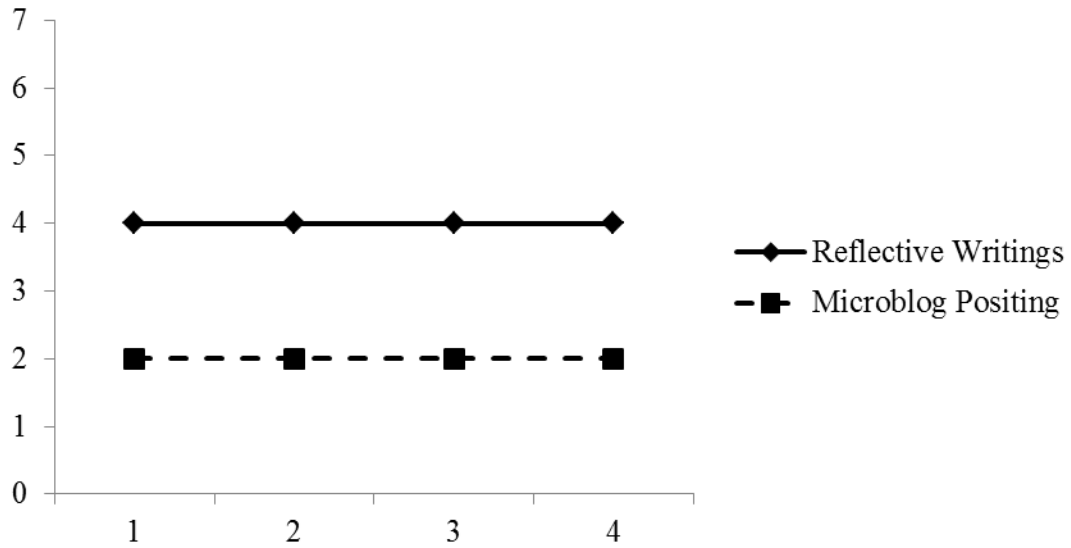
Figure 4.11. Case B reflective thinking levels

Q2.1: Did the research participant use microblog to conduct reflective practice before microteaching? How often?

Case B used microblog sometimes to conduct reflective practice before microteaching but not often. Figure 4.12 illustrates that she had 15 reflection-for-action (the reflection practice happened before the class) microblog postings, which means about 1.9 reflection-for-action microblog postings per week. They accounted for 25.4% of her total microblog postings. The figure also shows that her weekly reflection-for-action microblog posting number changed significantly, from 0 to 7.
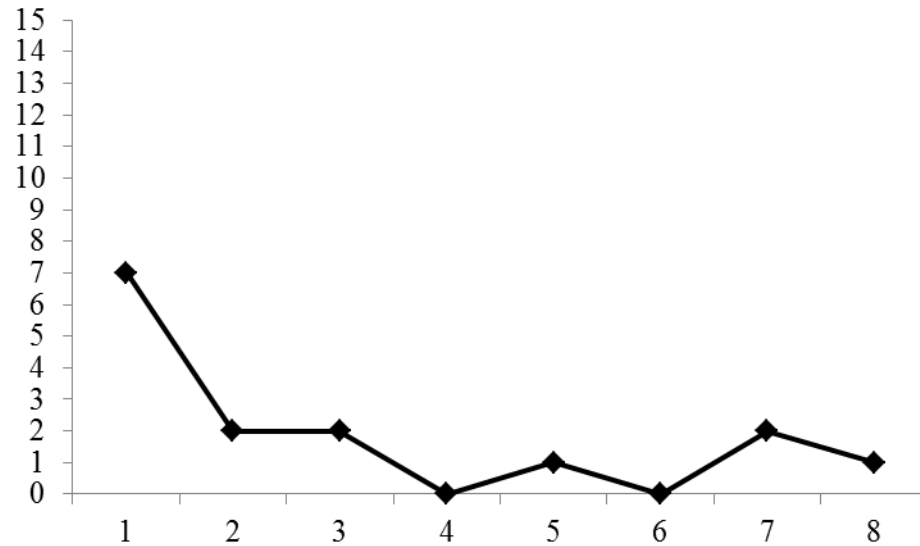
Figure 4.12. Case B weekly reflection-for-action microblog posting numbers

During the interviews, Case B talked about her experience of using microblog before microteaching. In Week 1, she said, "My classmates are too lazy. They do not have passion, so we cannot discuss well [before the class]." In Week 3, she said, "The reflection after class is not bad, but there are some troubles of doing this before the class. We are not living far from one another. Why not discuss everything directly in person?" In the Week 4, she agreed that she was not very active about the reflection before the class, as she said, "I always forget it or I just do not have any meaningful suggestions for my classmates." In Week 5, she said, "Only after things happen, I can find out where the problems are ... ... [Therefore,] I do not know how to reflect before the class."

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

Comparing with using microblog to conduct reflective practice before microteaching, Case B had a higher frequency of using microblog to conduct reflective practice during microteaching. Figure 4.13 illustrates that she had 39 reflection-in-action (the reflection practice happened during the class) microblog postings, which means about 4.9 reflection-in-action microblog postings per week. They accounted for 66.1% of her total microblog postings. The figure also shows that her weekly reflection-for-action microblog posting number changed significantly, from 0 to 11.
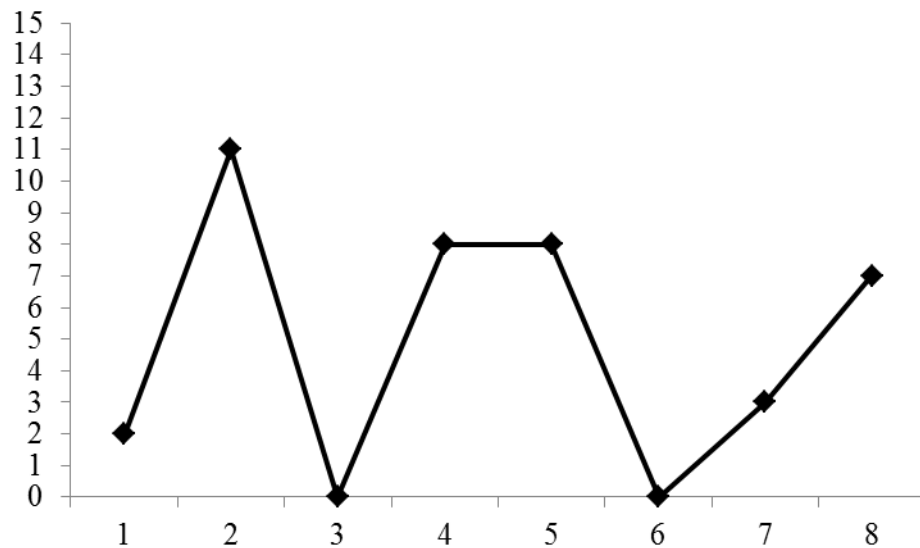
Figure 4.13. Case B weekly reflection-in-action microblog posting numbers

During the interviews, Case B talked about her experience of using microblog during microteaching. In Week 1, she said,

I did not get used to watching the projector screen when teaching ... ...I forgot reading microblog when teaching. I recognized it after I finished teaching ... ... But it is great to read my classmates' comments at that moment after teaching ... ... [If I had read microblog when teaching], there should have been some impact [on my teaching]. However, if the comments had been about my teaching contents, I could not have changed it immediately.

In Week 2, she felt that she was still very nervous on the stage so that she forgot watching microblog. She also mentioned the microblog web pages could only be refreshed manually and slowly. In Week 8, she agreed that the microblog comments had no impact on her microteaching performance since she believed that they could disturb her thinking at that moment.

Q2.3: Did the research participant use microblog to conduct reflective practice after microteaching? How often?

Case B rarely used microblog to conduct reflective practice after microteaching. Figure 4.14 illustrates that she had 5 reflection-on-action (the reflection practice happened after the class) microblog postings, which means about 0.6 reflection-on-action microblog postings per week. They accounted for 8.5% of her total microblog postings. The figure also shows that she only had reflection-for-action microblog postings in three weeks.
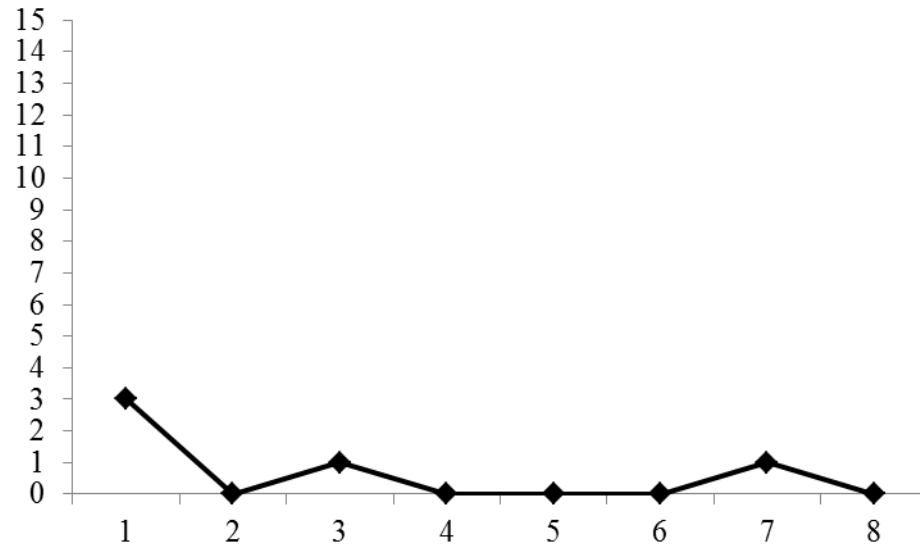
Figure 4.14. Case B weekly reflection-on-action microblog posting numbers

During the interviews, Case B talked about her experience of using microblog after microteaching. On the one hand, she said,

> I feel that, in order to improve teaching skills, you should have reflection after
>
> teaching because, after reviewing what you have taught, you can find out your
>
> own weaknesses ... ... [Therefore,] I feel that it is great to have some discussion
>
> after the class.

On the other hand, however, she found that it was easy to say but hard to do so, as she said, "It seemed that there was nothing for me to say after the class since all my comments have been posted on microblog [during the class]."

Q3.1: Did the research participant connect China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching?

Case B connected China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching. Case B said,

> Every class is just like a mini society ... ... Everyone pretends to be nice to others, but too many beautiful words are not better than a little honest criticism ... ... Microblog is still used by human beings. [Therefore,] changing the medium does not change the human relationships.

Q3.2: Did the research participant connect her school settings with her experience of using microblog for her reflective practice in microteaching?

Case B connected her school settings with her experience of using microblog for her reflective practice in microteaching. First of all, Case B complained about the heavy coursework in her program. She said,

> We have so many courses and so many assignments [in this semester], and we do not have weekends [since we have to go to class on Saturday] ... ... [Therefore, we] are unable to stay online [to use microblog] all the time.

Second, Case B talked about the poor Internet connection at the university. She said, "The facilities at the university are poor ... ... There is the limited Internet access ... ... This research project will be much better if the Internet access can be improved."

Finally, Case B mentioned the projector in the microteaching classroom. She thought that the location of the projector was not ideal, and she hoped that it was better for her to see the projector screen directly rather than turning back to see it. She also said,

"It will be better to have two projectors [in the microteaching classroom], one for microblog and the other for [us to] show our teaching slides."

Q3.3: Did the research participant connect her microteaching course settings with her experience of using microblog for her reflective practice in microteaching?

Case B connected her microteaching course settings with her experience of using microblog for reflective practice in microteaching. Case B talked about the poor class management. She thought that the people in this course still had few ideas of how to use microblog for their reflective practice in microteaching, as she said,

> Today the microblog was really a mess. We did not come out of a good idea about
> how to use microblog ... ... The problem was that some classmates did not reply
> the ["…… begins to teach now ……"] notification and posted comments directly
> on microblog.

Q3.4: Did the research participant connect her personal life experience with her experience of using microblog for her reflective practice in microteaching?

Case B connected her personal life experience with her experience of using microblog for her reflective practice in microteaching. Case B thought that her very limited microblog experience before this study had impact on how she used microblog for her reflective practice in microteaching. On the one hand, she agreed that microblog was a trend in China since she could see the microblog commercials everywhere. She believed that microblog was an important channel of spreading news in today's China. She even had a Sina Weibo account for about a year or two. On the other hand, However, she did not know Twitter. She rarely used microblog. She preferred QQ and Renren, a

social network website similar as Facebook, because most of her friends were using the two applications. She said, "If none of your friends use [microblog], why do you bother using it?"

Case Summary

Table 4.3 demonstrates the following findings from Case B: First of all, Case B's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case B had the mixed positive and negative but more negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, she thought that theoretically it was not a bad idea to use microblog for the reflective practice in microteaching. However, she also pointed out that it was a mess to figure out how to do and it would take some time to learn. Furthermore, she was too nervous to look at microblog while doing microteaching. In the middle of this study, she felt that they were more skilled at using microblog, but it was not so easy to use microblog because there was so much trouble seeing see the refreshed microblog. She found that most of the microblog postings were encouraging, and she could not work with the classmate in microteaching very well while using microblog. At the end of this study, she was not excited about microblog at all. She felt that she had nothing to post and had few responses on microblog. She had no special favor for using microblog in microteaching. She liked discussions in person rather than on microblog. She thought that it was better to use QQ or Renren. Although she had the high satisfaction scores of using microblog for her reflective practice in microteaching during this study, her frequency of using

125

microblog dramatically changed. Her reflective writings and microblog postings also showed that she did not have the high-level reflective thinking or use any complex microblog functions throughout this study.

Second, Case B's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case B changed her typical reflective practice in microteaching in this study. She rarely conducted reflection-for-action but not often. She rarely conducted reflection-on-action. But she conducted much more reflection-in-action.

Finally, Case B's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case B experienced the unique sociocultural influences when using microblog for her reflective practice in microteaching. Regarding China's social-cultural issues, she thought that every class was like a mini society where everyone pretends to be nice to others. Regarding the school settings, she mentioned the heavy coursework in her program, the poor Internet connection at the university, and the location problem of the projector in the microteaching classroom. Regarding the course settings, she talked about the poor class management. Regarding the personal life experience, she thought that she had very limited microblog experience and she preferred other communication channels.

Table 4.3

Case B Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• using microblog was a good idea • a mess of figuring out how to do • took some time to learn • too nervous to look at microblog while doing microteaching ↓ • we were more skilled • inconvenient to use microblog for microteaching • few weakness comments • microblog could not work with microteaching well ↓ • less passionate • few microblog postings • like other tools more	mixed positive and negative but more negative experience
	Q1.2	the dramatically-changing frequency of using microblog	
	Q1.3	the low-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	conducted reflection-for-action but not often	changed typical reflective practice in microteaching
	Q2.2	conducted much more reflection-in-action	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	Chinese were so unreal and too worldly-wise	unique social-cultural influences
	Q3.2	the poor Internet connection at the university the heavy coursework the projector location problem at the microteaching classroom	
	Q3.3	the poor class management	
	Q3.4	the limited microblog experience preferred other communication tools	

Case C

This section discusses Case C through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case Background

Case C was a 22-year-old female pre-service teacher from a city in Shanxi Province in China. This was her first year in the M.S. program in Subject Education with the focus on Physics Education.

Her undergraduate major was Physics Education. She chose this major because she was good at Physics in high school. She decided to go to the current graduate program because of the guaranteed financial support from the program.

She had the microteaching experience in her undergraduate program, and she thought that her performance was above the average in that microteaching course. She thought that reflective practice was to re-think about what she did to find out her strengths and weaknesses. Regarding the relationship between teaching and reflective practice, she believed that reflective practice helped her have a better teaching performance for the second time. She said that she liked to use her self-consciousness, or so-called "the sixth sense", and supervisor's comments to conduct reflective practice. She

thought that she had the high reflective practice capability because she could always identify her problems.

She had the pre-service teaching experience in a high school for three months to teach Physics. She felt that the biggest difference between microteaching and teaching in a real classroom was that microteaching had not real students. Furthermore, she found that the interactions between the students and her in a real classroom were much better and much more so that she had to observe the students more closely in order to get more feedback information. She believed that the major challenge in a real classroom was to stimulate the students' interests.

She planned to become a K-12 school teacher or go to work at a company after receiving her graduate degree. She wanted to be a teacher who students like, who can make courses interesting, and who has the charming personality.

She did not use computers or smart phones so often.

Her hobbies included playing badminton.

Q1.1: Did the research participant have a good attitude towards using microblog for her reflective practice in microteaching?

Case C reported her weekly satisfaction scores for using microblog for her reflective practice in microteaching throughout this study. The result is displayed by Figure 4.15. It was found that Case C had a high satisfaction score at the beginning of this study. Her score eventually went up to an even higher point during the middle weeks and stayed there until the end of this study.
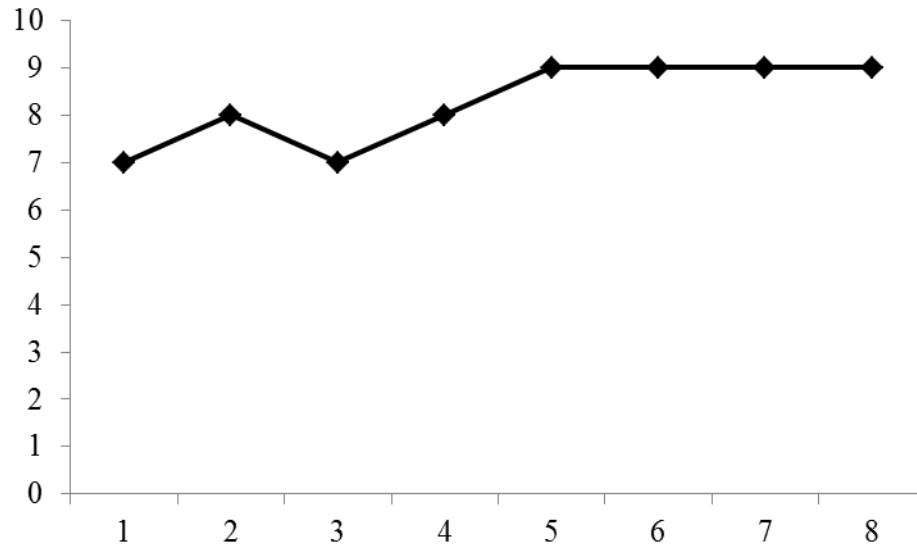
Figure 4.15. Case C weekly satisfaction scores

However, Case C's interviews demonstrated that her experience was different from what was found from the above satisfaction scores. The interviews showed that Case C did not have a consistent attitude towards using microblog for her reflective practice in microteaching. At the beginning of this study, Case C was uncertain about using microblog for the reflective practice in microteaching. On the one hand, she was curious about it. In Week 1, she said, "I feel curious [about using microblog for the reflective practice in microteaching] because I have never used it in that way before." She agreed that microblog had the potential value, as she said,

> The reflection on microblog supports the reflection practice in class since students in class usually do not make comments about their classmates while microblog provides a good reflection practice platform … … Using the traditional

130

[microteaching] method, we usually forget about what we want to say quickly

after watching others' microteaching performance. Now we can [use microblog]

to write down our opinions immediately while watch microteaching

performance...... [,and] we can go back to review what we write after the class.

She also said, "In real high school teaching, a teacher should have the good observation

capability, watching the students' behaviors and adjusting teaching immediately. [But]

currently we do not have such a capability. The reflection on Microblog notifies us [such

a gap]."

On the other hand, however, she said, "[Comparing with the reflection on microblog],

face-to-face reflection also has its strength: People get together to discuss problems.

Since there are many people, we can receive many different opinions." Furthermore, she

found that there were only good comments and she could not find out any constructive

ones. Therefore, she said, "I am not sure [about if it is a good idea to use microblog for

the reflective practice in microteaching."

In Week 2, Case C felt that she was still not certain about using microblog for the

reflective practice in microteaching. On the one hand, she said, "Microteaching did help

us. [For example], one of my classmates used it to find out how to deal with the challenge

in her microteaching topic." She also said, "We began to identify weaknesses on

microblog." But, on the other hand, she said, "The instructor still needs to emphasize

some issues in the class since not everyone pays attention to the comments on microblog.

Some issues still need to be illustrated by drawing graphs on blackboard." Therefore, she

reached the conclusion, "Currently I haven't seen the value [of microblog], but I cannot

say that it does not have value."

Her uncertain attitude continued in the following weeks. In Week 3, she thought that she got some help through microblog, but she also found that many of her classmates did not bring laptop to the microteaching classroom anymore. In Week 4, she agreed that she used microblog to know not only how others prepared microteaching but also how others made comments about her microteaching. But she also found that it was annoying to use her cell phone to access microblog. She said, "I could not find the private microblog group on my cell phone." In Week 5, she found that it was useful to use microblog for the reflective practice in microteaching since many of her classmates could post their comments on microblog if they did not have time to talk in the class. However, she also said, "Everything was fine except that I had to try to connect the Internet for several times." Until Week 8, Case C believed that her uncertain attitude still did not change since she always experienced both positive and negative issues.

From Case C's postings on microblog, it was found that she was anxious to learn microblog at the beginning of this study. For example, in Week 1, she posted, "Did everyone join microblog? I am out of the loop. I do not know how to use microblog!!!" At the same time, her microblog postings also showed her excitement about using microblog. For example, she posted some happy emotional icons on microblog in the first two weeks, such as

 ……

……

But these happy emotional icons were not in her following weeks' microblog postings.

Q1.2: Did the research participant have a high frequency of using microblog for her reflective practice in microteaching?

It was found that Case C had a slightly high frequency of using microblog during the eight weeks. Figure 4.16 demonstrates that she had a total of 58 microblog postings, which means about 7.3 microblog postings per week. The figure also shows that her weekly microblog posting number changed significantly over the eight weeks, ranging from 5 to 11.
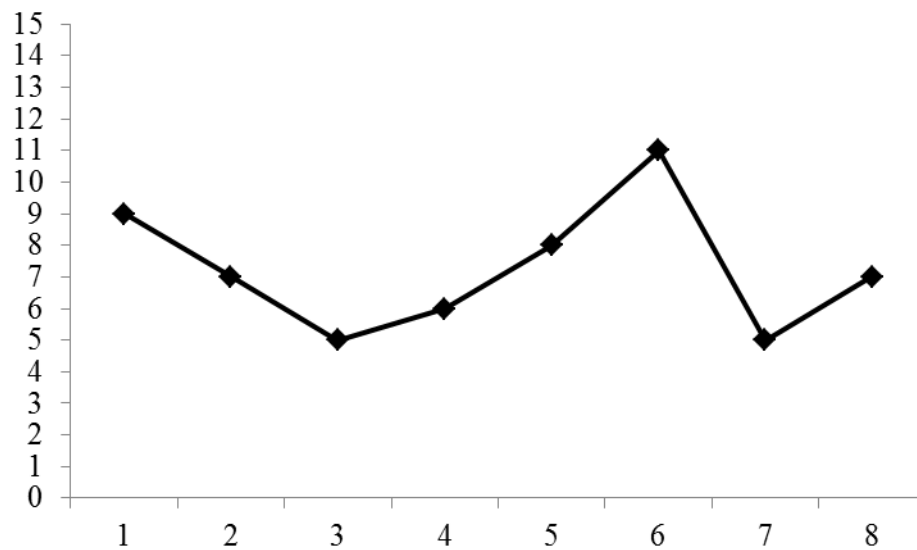
Figure 4.16. Case C weekly microblog posting numbers

Q1.3: Did the research participant have high-quality reflective thinking when using microblog for her reflective practice in microteaching?

Based on her reflective writings, Case C increased her reflective thinking during this study. Case C had four microteaching practices during the eight weeks, and she filed a reflective writing for each of the first three practices. The grading result based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991) is displayed by Figure 4.17. The figure demonstrates that her first reflective writing had Level 2 ("simple, layperson description") reflective thinking. For example, in her first reflective writing, she wrote, "Every time when I tried to write my lesson plan, I always stopped in the middle and could not keep writing." But her following two reflective writings had Level 4 ("explanation with tradition or personal preference given as the rationale") reflective thinking. For example, in her second reflective writing, she wrote that she found the two Physics textbooks used different introductions for her microteaching topic so that she decided to combine both of them.

Additionally, compared with her reflective writings, most of her microblog postings only had Level 2 ("simple, layperson description") reflective thinking, such as "Your speaking speed is very good." Furthermore, her microblog postings also showed that she rarely used emotional icons and the reply function on microblog but she never used any more complex microblog functions, such as the # symbol or hashtag.
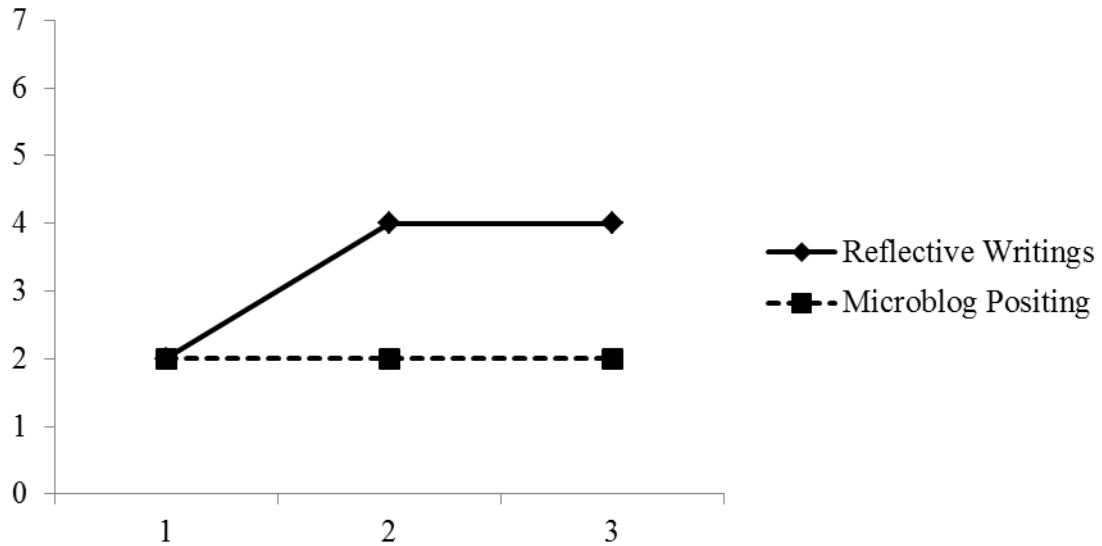
Figure 4.17. Case C reflective thinking levels

Q2.1: Did the research participant use microblog to conduct reflective practice before microteaching? How often?

Case C used microblog sometimes to conduct reflective practice before microteaching but not often. Figure 4.18 illustrates that she had 15 reflection-for-action (the reflection practice happened before the class) microblog postings, which means about 1.9 reflection-for-action microblog postings per week. They accounted for 25.9% of her total microblog postings. The figure also shows that her weekly reflection-for-action microblog posting number changed significantly, from 0 to 5.
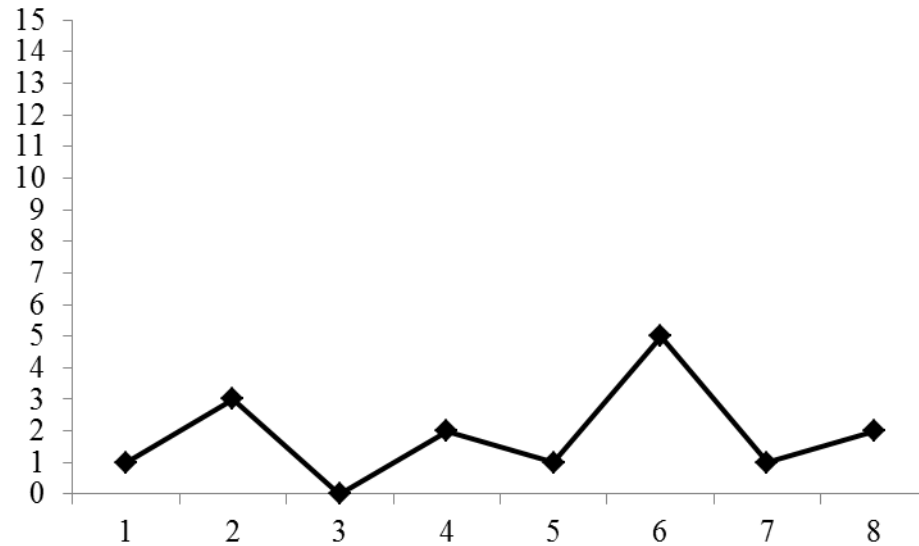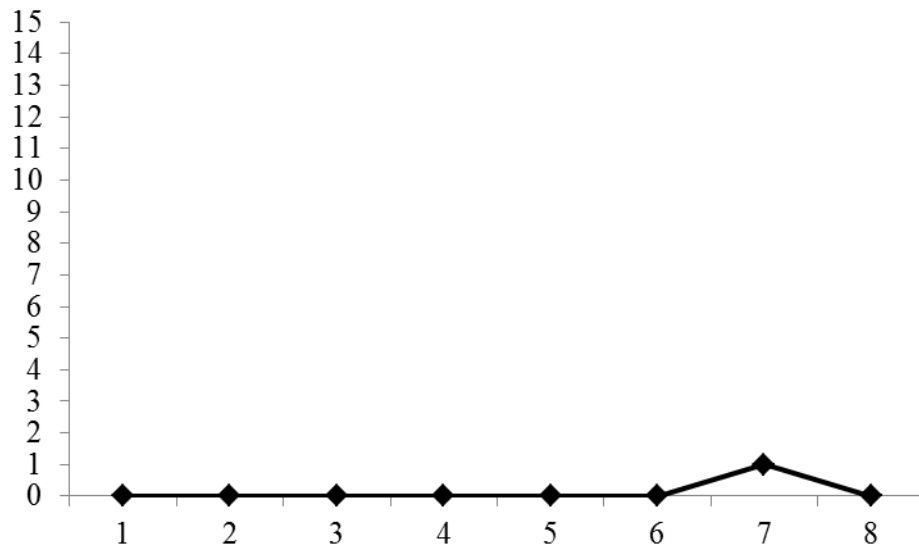
Figure 4.18. Case C weekly reflection-for-action microblog posting numbers

During the interviews, Case C talked about her experience of using microblog before microteaching. In Week 1, she admitted that the people in this course did not use microblog so often before the class, and she said, "I never thought about having reflection before the class." However, her opinion changed in Week 8, as she said,

> [Using microblog before microteaching] is a good idea …… I hope that more
>
> people would have tried it …… For some difficult teaching topics, others usually
>
> gave me some useful suggestions on microblog, which helped me reflect my
>
> lesson plan design.

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

Comparing with using microblog to conduct reflective practice before microteaching, Case C had a higher frequency of using microblog to conduct reflective practice during microteaching. Figure 4.19 illustrates that she had 42 reflection-in-action (the reflection practice happened during the class) postings, which means about 5.3 reflection-in-action microblog postings per week. They accounted for 72.4% of her total microblog postings. The figure also shows that her weekly reflection-for-action microblog posting number changed significantly, from 3 to 8.
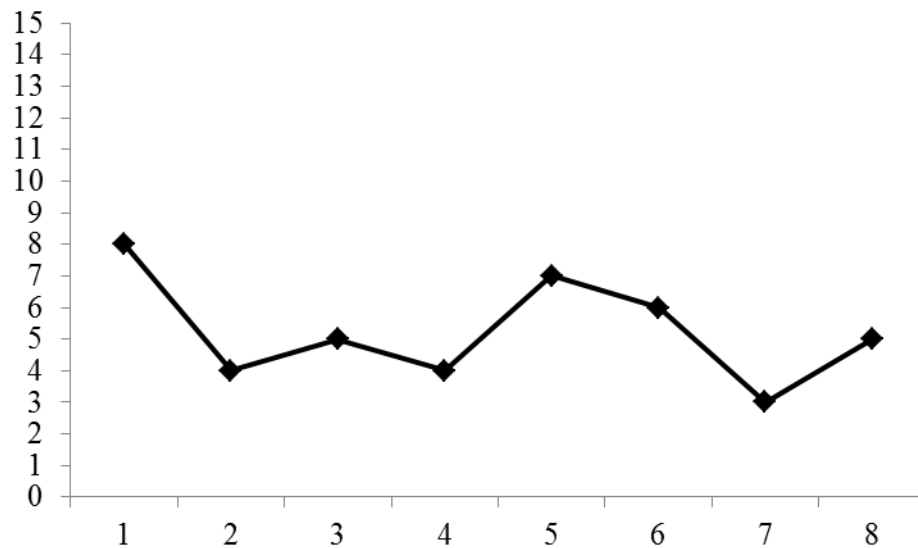
Figure 4.19. Case C weekly reflection-in-action microblog posting numbers

During the interviews, Case C talked about her experience of using microblog during microteaching. In Week 1, she said, "Microblog should not have too much impact on my microteaching." At the same time, however, she also said, "I can pay attention to the comments on microblog and adjust [my microteaching] since I have been a full-time teacher in a high school for three months and had some experience."

Q2.3: Did the research participant use microblog to conduct reflective practice after microteaching? How often?

Case C rarely used microblog to conduct reflective practice after microteaching. Figure 4.20 illustrates that she had only 1 reflection-on-action (the reflection practice happened after the class) microblog postings, which means about 0.1 reflection-on-action microblog postings per week. It accounted for 1.7% of her total microblog postings.

Figure 4.20. Case C weekly reflection-on-action microblog posting numbers

138

During the interviews, Case C talked about her experience of using microblog after microteaching. She agreed that reflection usually happened after microteaching. She also said, "I think that we should have some good discussions on microblog rather asking the instructor to do all the comments at the end."

Q3.1: Did the research participant connect China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching?

Case C connected China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching. Case C said,

> I hope that people should not only talk about the good side in the class. Nowadays the society made everyone become so unreal and too worldly-wise. The comments should point out problems directly, which can really make microblog work [in microteaching] ... ... The instructor told us clearly to talk about weaknesses only. However, people may feel the comments on microblog will be kept for a long time, [so they do not want to talk about weaknesses too much] ... ... I read an English article before, which said that today many managers asked their employees to file weekly reports by email rather than telephone call since [the employees] will be responsible for what they write in email.

She found that some of her classmates only appraised others. She also believed that the microblog comments for her were too good to be true, such as "perfect" and "classic teaching demo". She said, "My teaching skills will not become good just because others say that it is good. The key is to really understand myself." At the same time, she thought that she was too aggressive at giving comments, as she said, "I interrupted the instructor's

conversation in the class. I felt embarrassed. I will pay a price for such a kind of aggressive behaviors."

Q3.2: Did the research participant connect her school settings with her experience of using microblog for her reflective practice in microteaching?

Case C connected her school settings with her experience of using microblog for her reflective practice in microteaching. First, Case C consistently complained about the poor Internet connection at the university. In Week 1, she said, "The Wi-Fi coverage was so poor. The Internet connection often breaks. I spend so much time on connecting the Internet and refreshing microblog web pages. Therefore, I cannot focus on the person who is doing microteaching on the stage." In Week 3, she said,

> The university gave us a shared Wi-Fi account. I cannot even open web pages. Do you feel that it is funny to have such a poor campus network at a Chinese university ... ... Some other universities do not even have a wireless network ... ... We can also use the wired network. But it is even slower than the wireless network since the whole college is using a shared account [for the wired network].

In Week 8, she said, "[The university] really needs to improve the network."

Second, Case C mentioned the heavy coursework in her program. In Week 3, she said, "[The poor microteaching performances] are because currently we have a whole-day course schedule at each weekend and people have no time to prepare [microteaching]."

Q3.3: Did the research participant connect her microteaching course settings with her experience of using microblog for her reflective practice in microteaching?

Case C connected her microteaching course settings with her experience of using microblog for her reflective practice in microteaching. First, Case C talked about the long class session in each week. In Week 1, she said, "Sitting in the class for the whole afternoon [three hours from 2pm to 5pm] is exhausting. I cannot feel too much energy at the end of the class." Second, Case C mentioned the poor class arrangement which happened sometimes. In Week 7, she said that the teacher computer controller forgot to post the "……begins to teach ……" notification on microblog at the beginning of each microteaching performance so that the whole class felt confused about how to post comments there. Finally, Case C admitted that she had the little after-class contact with other people in this course except some good friends.

Q3.4: Did the research participant connect her personal life experience with her experience of using microblog for her reflective practice in microteaching?

Case C connected her personal life experience with her experience of using microblog for her reflective practice in microteaching. First of all, Case C thought that she was a kind of person who has no interest in chasing fashions. She never heard about Twitter. She said, "I opened a microblog account before. But I forgot the password, so I never used it." She also said, "I did not use microblog before. I usually use QQ and Renren."

Second, Case C mentioned that she was not a big fan of surfing the Internet, as she said, "I am a kind of person who does not like the Internet ... ... I do not use computer

so often, so I do not visit microblog so frequently ...... I more like to have my reflection on paper."

Finally, Case C felt anxious and uncertain about her future. She said,

I feel anxious about my future so that I cannot concentrate on preparing microteaching ... ... I have not a clear goal. I feel uncertain about my future ... ... It is very hard to find a job in big cities. It is even harder to find a job at the good high schools in big cities. Even finding a job in smaller cities becomes not so easy.

Case Summary

Table 4.4 demonstrates the following findings from Case C: First of all, Case C's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case C had the mixed positive and negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, she felt curious about using microblog for the reflective practice in microteaching. At the same time, she thought that there were strengths in both microblog reflection and face-to-face reflection, and she could not find any constructive comments on microblog. Therefore, she felt uncertain about favoring using microblog for the reflective practice in microteaching. In the middle of this study, although she admitted that it was useful to use microblog for the reflective practice in microteaching, she felt that it was annoying to use her cell phone to access microblog, and she had to try to connect the Internet for several times. Until the end of this study, her uncertain attitude still did not change since she always experienced both

positive and negative issues. Furthermore, although she had the very high satisfaction scores of using microblog for her reflective practice in microteaching during the most part of this study, she did not have a high frequency of using microblog for her reflective practice in microteaching. Her reflective writings and microblog postings also showed that she did not have the high-level reflective thinking or use any complex microblog functions throughout this study.

Second, Case C's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case C changed her typical reflective practice in microteaching in this study. She conducted reflection-for-action but not often. She rarely conducted reflection-on-action. But she conducted much more reflection-in-action.

Finally, Case C's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case C experienced the unique sociocultural influences when using microblog for her reflective practice in microteaching. Regarding China's social-cultural issues, she believed that nowadays the society made everyone become so unreal and too worldly-wise so that people only talk about the good side in the class. She felt that the microblog comments for her were too good to be true. Regarding the school settings, she consistently complained about the poor Internet connection at the university and the heavy coursework in her program. Regarding the course settings, she talked about the poor class arrangement and the little after-class contact with others except some good

143

friends. Regarding the personal life experience, she thought that she was a kind of person who has no interest in chasing fashions. She thought that she was not a big fan of surfing the Internet. She also felt anxious and uncertain about her future so that she could not concentrate on preparing microteaching.

Table 4.4

Case C Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• curious about microblog • both face-to-face and microblog reflection have strengths • not too frustrated ↓ • we were more excited • few weakness comments ↓ • more frustrated • few weakness comments • less passionate	mixed positive and negative experience
	Q1.2	the middle frequency of using microblog	
	Q1.3	the middle to low-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	conduct conducted reflection-for-action but not often	changed typical reflective practice in microteaching
	Q2.2	conducted reflection-in-action and more often	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	Chinese were so unreal and too worldly-wise	unique social-cultural influences
	Q3.2	the poor Internet connection at the university the heavy coursework	
	Q3.3	the long class session the poor class arrangement the little after-class communication except microblog	
	Q3.4	had no interest in chasing fashions disliked using the Internet felt anxious about the future	

Case D

This section discusses Case D through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case Background

Case D was a 25-year-old female pre-service teacher from a city in Guizhou Province in China. This was her first year in the M.Ed. program in Curriculum & Instruction with the focus on Physics Education.

Her undergraduate major was Biomedical Engineering. At that moment, she was not accepted by any teacher universities or colleges. However, she still wanted to be a teacher. Therefore, she applied for this graduate program.

She did not have the microteaching experience in her undergraduate study, but she believed that microteaching was useful to improve her teaching skills. She thought that reflective practice was to recall her own behaviors and summarize findings in order to maintain the strengths while avoiding the weaknesses in the future. Regarding the relationship between teaching and reflective practice, she believed that reflective practice could help to improve her teaching skills. She usually used supervisors' comments, reflective notes, and teaching demo videos to conduct reflective practice. She said,

"When others point out my problems, I can understand them very quickly and find out the solutions." However, she also believed that her reflective practice capability was not good enough. She said, "I still do not know what is good teaching. I still do not know how to learn from others' teaching, either." Therefore, she would like to learn teaching skills by watching teaching demo videos.

She had the pre-service teaching experience in an elementary school for a semester to teach Chinese Literature. She found that the major differences between microteaching and teaching in a real classroom were students' responses and their interactions with the teacher. She found that the students in microteaching were not real since these students knew the answers for all your questions already, which was different from the real classroom settings. Furthermore, she found that she felt nervous in microteaching while feeling much more relaxed in a real classroom. Regarding her teaching skills, she believed that she was good at speech since she loved Chinese Literature. But she felt that she should improve her teaching structure and quick-response skills.

She wanted to be a K-12 school teacher after receiving her graduate degree. She did not want her students to have too much exam pressure to lose their creativity. Therefore, she wanted to be a teacher who can bring not only knowledge but also happiness to students. However, she also agreed that in the real world the pressure of the National College Entrance Exam made it impossible for most K-12 school teachers to do so. Therefore, she said, "When I become a teacher, I may not be able to hold my belief, and possibly become just like other teachers."

She did not use smart phones. She did not use computers so often since she had too much coursework. She said, "I have so many courses. I do not have a completely free half of day just for myself."

Her hobby was to listen to songs.

Q1.1: Did the research participant have a good attitude towards using microblog for her reflective practice in microteaching?

Case D reported her weekly satisfaction scores for using microblog for her reflective practice in microteaching throughout this study. The result is displayed by Figure 4.21. It was found that Case D had a low satisfaction at the beginning of this study. Her score went up during the middle weeks but dropped slightly at the end of this study.
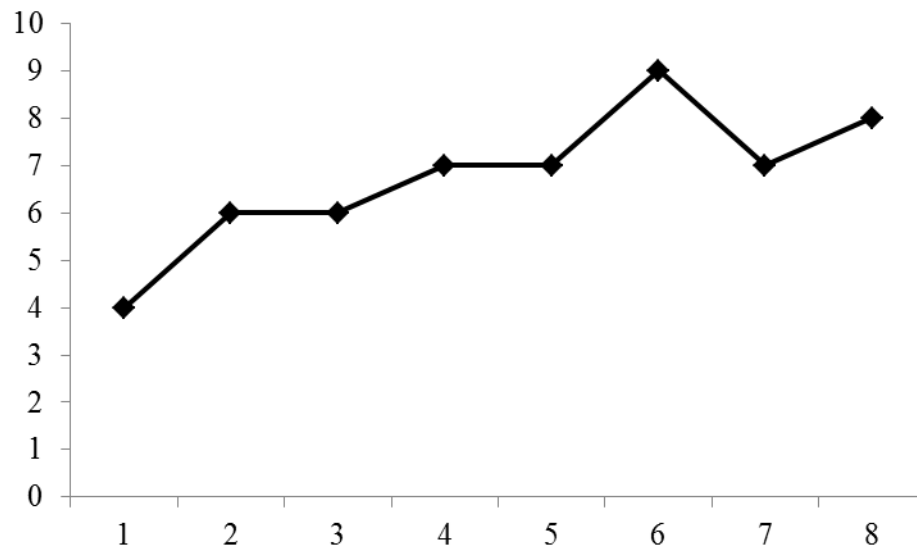
Figure 4.21. Case D weekly satisfaction scores

However, the story from Case D's interviews was different from the above satisfaction scores. The interviews showed that she did not have a consistent attitude towards using microblog for her reflective practice in microteaching. At the beginning of this study, Case D had the mixed feeling about using microblog for her reflective practice in microteaching. On the one hand, she said, "Theoretically it should be a good idea." On the other hand, however, she also said,

I feel that [pre-service] teachers should be able to recognize students' responses and adjust [teaching], but our teaching skills are not good enough. Therefore, it is better [for us] to see the audiences' behaviors directly [rather than reading microblog comments] to adjust teaching.

But she agreed that the result would be better when they got used to using microblog for the reflective practice in microteaching.

In the following three weeks, Case D found that the class began to get used to use microblog to see the microteaching comments. However, she also found that the Internet connection was not satisfying, and there were only encouraging microblog postings, such as "cheer up" and "perfect", which were meaningless for her.

In Week 5 and Week 6, Case D felt that she began to like microblog more. She said, "I really like using microblog to find out the others' teaching topics and comments." She also said,

The reflection on microblog is more interactive compared with that on QQ. If we use QQ, maybe it is difficult to require everyone to be online at the same time. ...
... Even if I ask my roommates any questions, I have to make sure that everyone

149

has the same free schedule …… The reflection on microblog has not such a restriction. I can post my comments on microblog whenever I am free, while my classmates can reply me whenever they are free.

But she also said, "I cannot stay online all the time ...... I really dislike taking my laptop out [from my drawer] in order to see microblog. But sometimes when I come back home late, I still want to take such a trouble to start my laptop to visit microblog."

In the last two weeks, Case D said, "I have got used to visit microblog to see the others' comments, especially in the weeks when I had microteaching." But she also felt a little discouraged since she found that there were fewer people who post comments on microblog. She agreed that she still liked QQ more if she had to pick one from the two. Furthermore, she also mentioned that she did not like too many "cheer up" type of comments on microblog, as she said, "Although they are encouraging, I feel that [we] do not need to use 'cheer up' to decorate [microblog]."

From Case D's postings on microblog, it was found that she was excited to use microblog at the beginning of this study. For example, in Week 1, her first microblog posting was, "I am coming too!" She also used some happy emotional icons in her first three weeks' microblog postings, such as

…… 😆

…… 🙂

But these happy emotional icons could not be found in her following weeks' microblog postings.

Q1.2: Did the research participants have a high frequency of using microblog for her

reflective practice in microteaching?

It was found that Case D had a slightly high frequency of using microblog during the eight weeks. Figure 4.22 demonstrates that she had a total of 64 microblog postings. , which means about 8 microblog postings per week. The figure also shows that her weekly microblog posting number changed dramatically over the eight weeks, ranging from 3 to 15.
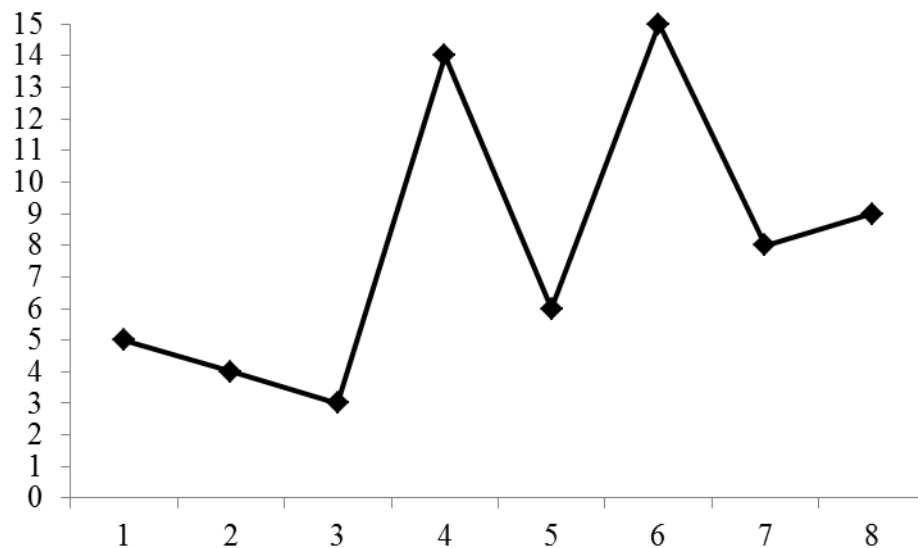
Figure 4.22. Case D weekly microblog posting numbers

Q1.3: Did the research participant have high quality reflective thinking when using microblog for her reflective practice in microteaching?

Case D had four microteaching practices during the eight weeks, and she filed a reflective writing for each of the first three practices. The grading result based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991) is displayed by Figure 4.23. The figure demonstrates that her reflective writings had Level 2 ("simple, layperson description") reflective thinking throughout this study. For example, in her first week writing, she wrote, "On Monday morning I wake up very early. I was unable to sleep so that I was thinking about how I should teach in order to present ...... clearly to students."

Additionally, most of her microblog postings only had Level 2 ("simple, layperson description") reflective thinking, such as "Your logic is very clear." Furthermore, her microblog postings also showed that she used emotional icons and the reply function on microblog but not often, and she never used any more complex microblog functions, such as the # symbol or hashtag.
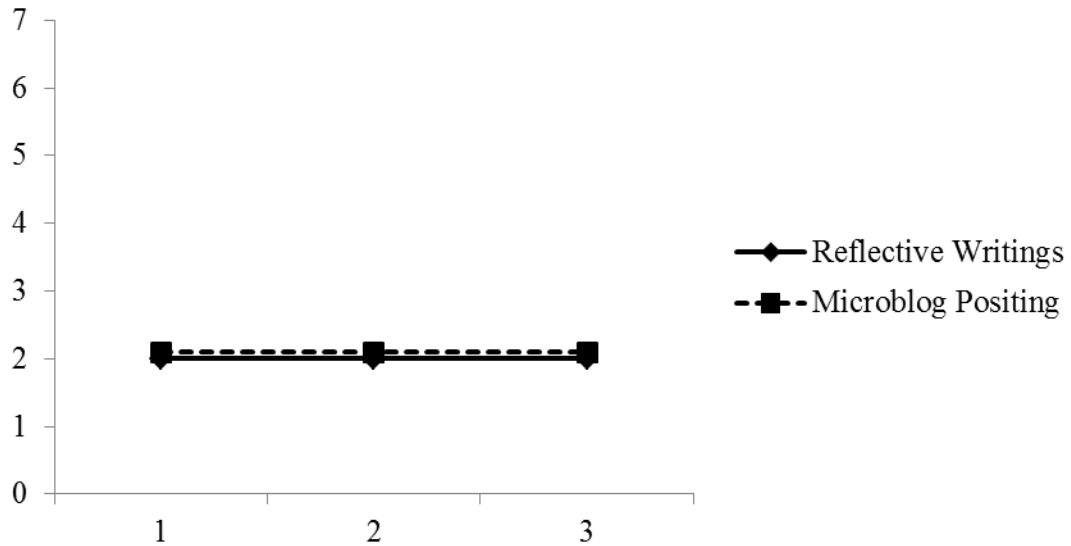
Figure 4.23. Case D reflective writing grades

Q2.1: Did the research participant use microblog to conduct reflective practice before microteaching? How often?

Case D used microblog to conduct reflective practice before microteaching but not often. Figure 4.24 illustrates that she had 22 reflection-for-action (the reflection practice happened before the class) microblog postings, which accounted for 34.4% of her total microblog postings. The figure also shows that her weekly reflection-for-action microblog posting number changed significantly, from 0 to 6.
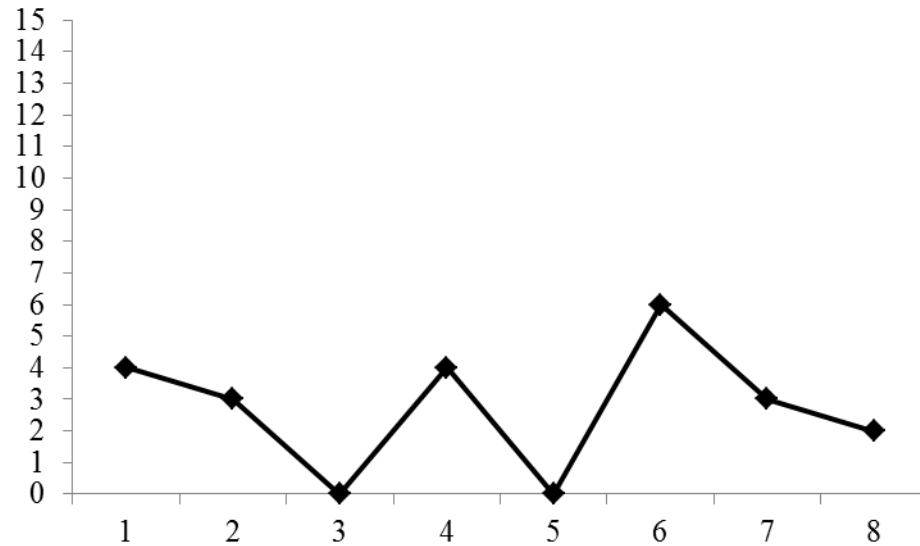
Figure 4.24. Case D weekly reflection-for-action microblog posting numbers

During the interviews, Case D talked about her experience of using microblog before microteaching. In Week 1, she said, "We paid less attention to the reflection on microblog before the class, which should be improved." But she also mentioned some limitations of using microblog to conduct reflective practice before microteaching. In the Week 3, she said, "I did not have reflection before the class because the Internet connection was not good." In Week 4, she said,

I only got some encouraging comments rather than constructive ones ……
Perhaps people do not want to make comments until they see how others make comments …… Using microblog before the class, people should give more details about what kind of help they need, which will help others find out how to give suggestions accordingly.

154

In Week 5, she said,

> I really did not know how to provide suggestions to others before the class since
> they did not ask for any help. If I had replied them, I could only have replied with
> a "cheer up" type of comments. Therefore, I did not reply …… But I agree that
> there should be the reflection before the class if we have time.

In Week 7, she pointed out the same issue: Only two classmates posted their

microteaching topics and they did not ask any specific questions. Therefore, she did not

reply them. She said, "I feel that people do not use microblog so often. Every time people

just post [their teaching topics] right before the class. Even if someone asks for help,

maybe it is too late. In Week 8, she said, "This issue comes from that people do not have

a clear help signal on microblog before the class."

Q2.2: Did the research participant use microblog to conduct reflective practice during

microteaching? How often?

Comparing with using microblog to conduct reflective practice before

microteaching, Case D had a slightly higher frequency of using microblog to conduct

reflective practice during microteaching. Figure 4.25 illustrates that she had 28 reflection-

in-action (the reflection practice happened during the class) microblog postings, which

accounted for 43.8% of her total microblog postings. The figure also shows that her

weekly reflection-for-action microblog posting number changed significantly, from 1 to

7.
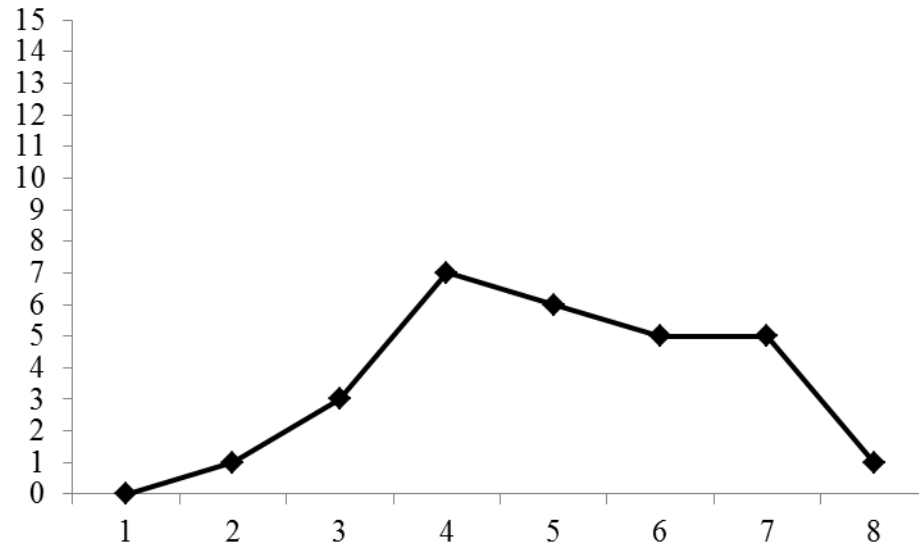
Figure 4.25. Case D weekly reflection-in-action microblog posting numbers

During the interviews, Case D talked about her experience of using microblog during microteaching. In Week 1, Case D thought that it was possible to use microblog comments when conducting microteaching. She said,

> The instructor told us how to use the small breaks during our microteaching to look at the comments on microblog. For example, when we ask the "students" to read a section of the textbook or to have a small group discussion, we can look at microblog.

However, she said, "My instant response ability is not good. During my microteaching, I did not adjust my performance well although I recognized that I should adjust it."

In Week 2, she found that it seemed easy to say but difficult to use microblog comments when conducting microteaching, as she said,

156

I still did not use microteaching when doing microteaching. Actually I reserved some time [in my lesson plan] to look at microblog …… But when I began to teach, I was totally unable to look at microblog …… I felt so exhausted on the stage, and I felt that I did not well …… It was really a challenge …… Perhaps it will take several weeks to find out [if this method works].

In Week 3, Case D felt more discouraged, as she said,

Once again, I felt that it was very difficult for a microteaching performer to take breaks to look at microblog and adjust immediately …… I remember that sometimes people play microblog games in parties, the audiences off stage could send microblog messages by cell phone and their messages were displayed on a big screen, which caught everyone's attention. I am thinking that maybe we can use such a method.

In Week 8, Case D said, "I tried [to use the comments on microblog when doing microteaching], and I even kept some time in my lesson plan for this. However, I have never really done so."

Q2.3: Did the research participant use microblog to conduct reflective practice after microteaching? How often?

Case D used microblog to conduct reflective practice after microteaching but too often. Figure 4.26 illustrates that she had 14 reflection-on-action (the reflection practice happened after the class) microblog postings, which accounted for 21.9% of her total microblog postings. The figure also shows that her weekly reflection-on-action microblog posting number changed significantly, from 0 to 6.
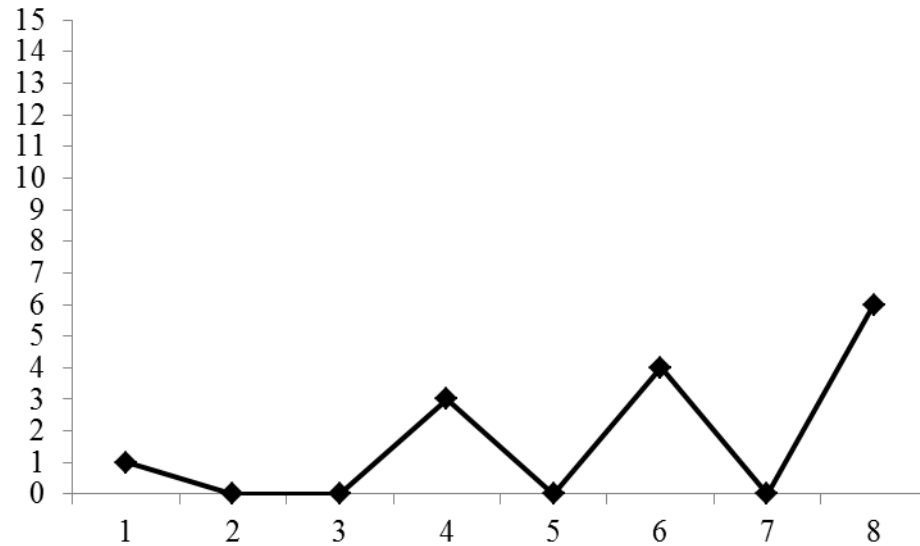
Figure 4.26. Case D weekly reflection-on-action microblog posting numbers

However, what she did was very different from what she talked about during the interviews. In one of the interviews, she said, "The reflection should happen after microteaching …… [, although] all the reflection [before, during, and after microteaching] are important."

Q3.1: Did the research participant connect China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching?

Case D connected China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching. Case D said,

Our comments on microblog are mostly encouraging ... ...Perhaps this is one of Chinese students' characteristics, which is being implicit rather than being direct ...... Giving others many encouraging comments is because we worry about that

158

too direct criticism can hurt others ...... For me, I worry a lot about if others will give my too direct criticism. I will not be able to handle it. I will doubt that I can become a good teacher. But, when I am thinking about this carefully, I still hope that others can give me some direct suggestions ...... Only when receiving the [direct] comments, I can learn how to improve ...... [myself]. Furthermore, I feel that people do not criticize others easily because everyone has different teaching styles ...... Or perhaps people are not sure if they have better ideas than others.

Q3.2: Did the research participant connect her school settings with her experience of using microblog for her reflective practice in microteaching?

Case D connected her school settings with her experience of using microblog for her reflective practice in microteaching. First, Case D talked about the heavy coursework in her program, as she said,

We have too many courses in this semester ...... I do not have a complete half a day just for myself ...... I am trying to find time to visit microblog but maybe I am unable to do so in time.

Second, she pointed out the poor Internet connection at the university. She said, "I can hardly access the Internet via the wireless network, so I had to use the wired network [, which was not good either] ...... [The university] needs to improve the networks."

Third, she mentioned the projector in the microteaching classroom, as she said, "The words projected on the white screen are too small ...... It will be better if a microteaching performer can see [the words on the white screen]."

Finally, she talked about the video recording problem at the microteaching classroom. She said, "It will be better to record our microteaching so that we can review it after microteaching …… It seems that the microteaching classroom does not have the equipment for video recording."

Q3.3: Did the research participant connect her microteaching course settings with her experience of using microblog for her reflective practice in microteaching?

Case D connected her microteaching course settings with her experience of using microblog for her reflective practice in microteaching. First, Case D talked about the instructor-led classroom culture, as she said, "Actually [the instructor] asked us to criticize one another. Because all the people waited there for a while without any comments, the instructor had to make comments by herself. Eventually we got used to this."

Second, Case D mentioned the limited face-to-face communication in this course. She said, "Our face-to-face communication is limited .... [Therefore,] microblog becomes the main channel for me to keep in touch with my classmates and instructor."

Q3.4: Did the research participant connect her personal life experience with her experience of using microblog for her reflective practice in microteaching?

Case D connected her personal life experience with her experience of using microblog for her reflective practice in microteaching. First. Case D agreed that nowadays microblog has been used widely as an information exchange platform in China. She said,

Chinese already got used to using microblog to express themselves. [Therefore, Chinese] officials worry about that their bad behaviors are exposed on microblog ...... For example, on one day when I was at the railway station, there were so many passengers there, and some of them were trapped for a long time. I saw that someone used cell phone to take some photos. The station staff found and said, "Please do not take photos and post them on microblog."

Although microblog became so popular in China, she still believed that Chinese were more familiar with QQ. She said, "It is much easier to keep in touch with someone on QQ …… If there is an emergency, I will probably use QQ to find my friends or just call them directly."

Second, she talked about her handset with the limited Internet access. She said, "I used microblog before, almost every day…… But now it is not convenient to use the Internet …… My cell phone is not a smart phone, so I cannot use microblog anytime."

Third, she mentioned that she had no formal teaching skills training in her undergraduate program. She said,

My undergraduate major is not education. Therefore, my formal microteaching training just began recently. It is easy for me to accept this training method since I do not have a previous microteaching model in my mind yet.

Furthermore, because she had not any previous teaching skills training, she felt that she had a lot of weaknesses. She said,

I do not have the [teaching] judgment skills, so I would like to observe others first [rather than making comments]. I have always been trying to learn from others.

161

Sometimes I really do not know how to identify others' serious teaching problems, although I might probably find out [others'] spelling errors. It is not to say that I am unwilling to criticize others in person. It is just because I am unable to find out their problems.

Case Summary

Table 4.5 demonstrates the following findings from Case D: First of all, Case D's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case D had the mixed positive and negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, Case D had the mixed feeling about using microblog for her reflective practice in microteaching. On the one hand, she believed that it was a theoretically good idea. On the other hand, she thought that their teaching skills were not good enough to apply this method. But she also said that it would be better when they got used to using microblog. In the middle of this study, she felt that the class began to get used to use microblog. But she also found that there were only encouraging microblog postings, and it was inconvenient to start computer to use microblog. At the end of this study, she felt a little discouraged since fewer people posted comments on microblog and she did not like too many "cheer up" type of comments on microblog. Furthermore, although she increased her satisfaction score of using microblog for her reflective practice in microteaching during this study and she had a slightly high frequency of using microblog, her reflective writings and microblog postings showed that

162

she did not have the high-level reflective thinking or use any complex microblog functions throughout this study.

Second, Case D's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case D changed her typical reflective practice in microteaching in this study. She conducted reflection-for-action and reflection-on-action but not often. But she conducted much more reflection-in-action.

Finally, Case D's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case D experienced the unique sociocultural influences when using microblog for her reflective practice in microteaching. Regarding China's social-cultural issues, she thought that one of Chinese students' characteristics is being implicit rather than being direct, so she worried about giving or receiving direct criticism. Regarding the school settings, she consistently complained about the heavy coursework in her program, the poor Internet connection at the university, the misused projector in the microteaching classroom, and the unavailability of video recording equipment in the microteaching classroom. Regarding the course settings, she talked about instructor-led classroom culture and the limited face-to-face communication in this course, which made microblog become the main channel for her to keep in touch with her classmates and instructor. Regarding the personal life experience, she felt the popularity of microblog in China although she liked QQ more. She mentioned her handset with the limited Internet

access. She also talked about that she hesitated making microblog comments because of her limited teaching skills.

Table 4.5

Case D Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• using microblog was a good idea • teaching skills were not good enough • it would be better when we got used to microblog ↓ • we were more skilled • few weakness comments • inconvenient to use microblog for microteaching ↓ • more frustrated • few microblog postings • few weakness comments	mixed positive and negative experience
	Q1.2	the middle frequency of using microblog	
	Q1.3	the low-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	conduct conducted reflection-for-action but not often	changed typical reflective practice in microteaching
	Q2.2	conducted reflection-in-action and more often	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	Chinese liked to be implicit rather than being direct	unique social-cultural influences
	Q3.2	the poor Internet connection at the university the heavy coursework the projector location problem at the microteaching classroom no video recording equipment in the microteaching classroom	
	Q3.3	the instructor-led classroom culture the little in-class communication except microblog	
	Q3.4	the influence of the popularity of microblog in China use cell phone to access microblog the limited teaching skills	

Case E

This section discusses Case E through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case Background

Case E was a 24-year-old female pre-service teacher from a village in Shanxi Province in China. This was her first year in the M.Ed. program in Curriculum & Instruction with the focus on Physics Education.

Her undergraduate major was Physics Education. She chose this major because she loved both teaching and she could only get into Physics Education. She decided to have graduate education since she felt that her bachelor degree could not help her stand out among so many college graduates. She said, "I do not want to be the majority. I want to study for two more years while not paying a penny for the tuition." In China, if a student is officially accepted by a graduate program, except some professional programs, such as MBA, he or she does not need to pay the tuition.

She had the microteaching experience in her undergraduate program. She said, "I take microteaching seriously. If I do not do well in front of my classmates, I feel that I lose my dignity." She thought that her performance was at the average level in that

microteaching course. She believed that microteaching was useful because it gave her an opportunity to practice teaching skills. However, she also admitted that at that moment many of the undergraduate pre-service teachers did not take the microteaching course seriously because of preparing for the graduate school admission exams. She defined reflective practice as "thinking about what I have done in order to improve myself". Regarding the relationship between teaching and reflective practice, she believed that it was impossible to separate teaching and reflective practice. She did not think that her reflective practice had any problems. She said, "I knew my weaknesses [, such as language problems and logic problems]. What I need most is to have more teaching practice. Only teaching practice can make me better. "

She had the pre-service teaching experience in a high school for three months to teach Physics. She felt that the biggest difference between microteaching and teaching in a real classroom was students. She said, "The students in microteaching can usually answer questions pretty well." She believed that the biggest challenge in a real classroom was to encourage students to be active while, at the same time, expecting them to obey the classroom disciplines. She felt that one of her weaknesses in teaching was to give students too much freedom, which usually led her to lose the control of the whole classroom. Additionally, she found that her teaching could also be interrupted easily by students.

She wanted to be a K-12 school teacher after receiving her graduate degree. She wanted to be a teacher who can be beneficial to students.

She used computers and smart phone often.

Her hobbies included reading cartoon books and enjoying natural beauty, but she also said that she changed her hobbies quickly. She believed that her hobbies could actually help her study.

Q1.1: Did the research participant have a good attitude towards using microblog for her reflective practice in microteaching?

Case E reported her weekly satisfaction scores for using microblog for her reflective practice in microteaching throughout this study. The result is displayed by Figure 4.27. It was found that Case E had a low satisfaction score at the beginning of this study. Although her score changed during the middle weeks, it eventually increased to a slightly higher point.
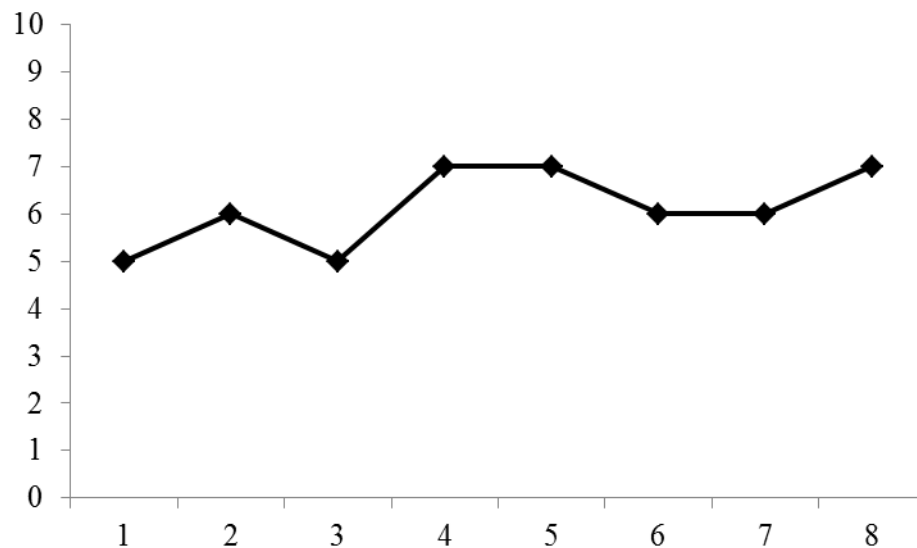
Figure 4.27. Case E weekly satisfaction scores

However, Case E's interviews revealed her experience in another way. At the beginning of this study, Case E said, "I did not feel surprised or excited [about using microblog for the reflective practice in microteaching] because I never heard it." But she also said,

> It is an interesting idea with a sense of creativity. We can review the comments on microblog after the class to find out our own strengths and weaknesses so that we can improve later …… Our practice in the class showed that the result was generally satisfying …… Basically all the people wanted to participate in microblog actively, expressing their own opinions or cheering up the peers …… [Furthermore,] it is easy to use microblog to expose teaching problems, and it is also fast to make comments …… One of the strengths of microblog is that, whenever you find out any teaching problems, you can poste them immediately.

However, on the other hand, she also found some disadvantages of using microblog for her reflective practice in microteaching. She said, "I want to point out [others' teaching] problems, but I worry about that such comments will make others discouraged. [Therefore,] most of my comments are encouraging." She also said, "I did not get used to the high pace of participating microteaching while using microblog." Therefore, she thought that it was better for her to get familiar with microblog first.

In the following weeks, it seemed that Case E experienced more negative issues rather than the positive ones of using microblog for her reflective practice in microteaching. In Week 2, she said, "I have not used microblog for too long … … The major problem is that I do not know how to use microblog." For example, she said that

169

she did not know how to click the hyper link "expand all the replied" after a microblog entry to see all the replies. In Week 3, she said,

> I just used my cell phone to get familiar with Sina Weibo …… After I logged in, I could not find our private microblog group …… If I have time, I hope that everyone can reply and make comments. But it is not convenient to use microblog …… Well, for example, if I use cell phone to log in microblog, I cannot see my classmates' comments at all.

In Week 4, she said, "I still feel that it is not convenient. Every time I have to log into several web pages, which is annoying."

In the last several weeks, Case E felt a little tired of using microblog for her reflective practice in microteaching. In Week 6, she said,

> This week I felt a little exhausted. We had fewer comments on microblog …… I felt that I did not know what I should say …… Every time the comments were almost the same. I felt that it was really so meaningless …… I felt that I did not feel so excited about it …… I felt that I did not use microblog so often …… [My cell phone] has a small data plan. It was too slow to log into microblog. Usually I had to switch several web pages, and it was very slow to switch these web pages.

From Case E's postings on microblog, it was also found that she was excited to use microblog at the beginning of this study. For example, in Week 1, she had the following postings on microblog:

> Haha.

> Yeah, cheer up.

Yeah, cheer up.

......

Cheer up!

......

Cheer up!

However, such kind of happy expression could not be found from her microblog postings since Week 3.

Q1.2: Did the research participants have a high frequency of using microblog for her reflective practice in microteaching?

It was found that Case E has significantly changed her frequency of using microblog during the eight weeks. Figure 4.28 demonstrates that she had a total of 45 microblog postings. The figure also shows that her weekly microblog posting number in Week 1 was 17, at its highest level. Then it decreased dramatically to only 1 in Week 8.
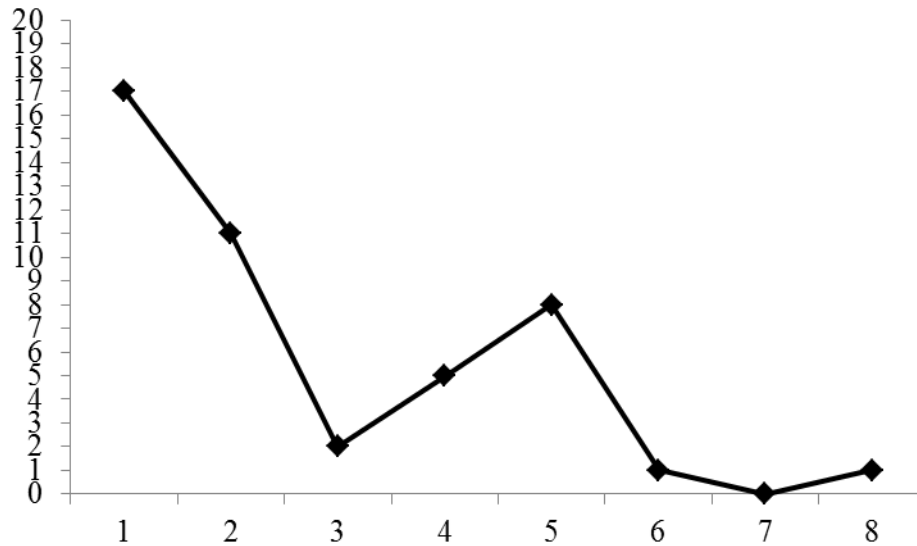
Figure 4.28. Case E weekly microblog posting numbers

Q1.3: Did the research participant have high quality reflective thinking when using microblog for her reflective practice in microteaching?

Case E had four microteaching practices during the eight weeks, and she filed a reflective writing for each practice. The grading result based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991) is displayed by Figure 4.29. The figure demonstrates that her reflective writing at the beginning of this study had Level 3 ("events labeled with appropriate terms") reflective thinking. For example, in her first reflective writing, she used the appropriate terms, such as "the ideal model in Physics", to conduct her reflective practice. During the middle of this study, her reflective writing had Level 4 ("explanation with tradition or personal preference given as the rationale") reflective thinking. For example, in her second reflective writing, she wrote, "I should use

172

some daily life examples to help the students think if the heavier object is falling faster

...... before I introduce the concept of the free falling object motion." But at the end of

this study, her reflective writing had Level 2 ("simple, layperson description") reflective

thinking. For example, in her last reflective writing, she wrote, "I feel that I need more

confidence and more passion."

Additionally, compared with her reflective writings, most of her microblog

postings only had Level 2 ("simple, layperson description") reflective thinking, such as

"Please have more interaction with the students." Furthermore, her microblog postings

also showed that she rarely used the reply function on microblog but she never used any

more complex microblog functions, such as the # symbol or hashtag.
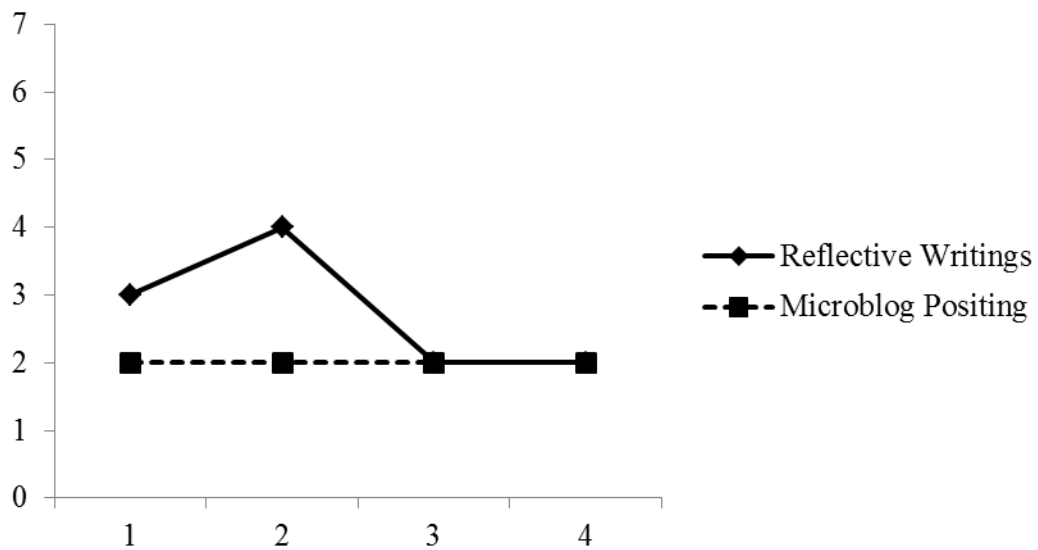
Figure 4.29. Case E reflective thinking levels

Q2.1: Did the research participant use microblog to conduct reflective practice before

microteaching? How often?

Case E used microblog to conduct reflective practice before microteaching but not often. Figure 4.30 illustrates that she had 12 reflection-for-action (happened before the class) microblog postings, which accounted for 26.7% of her total microblog postings. The figure also shows that her weekly reflection-for-action posting number changed significantly, from 0 to 5.
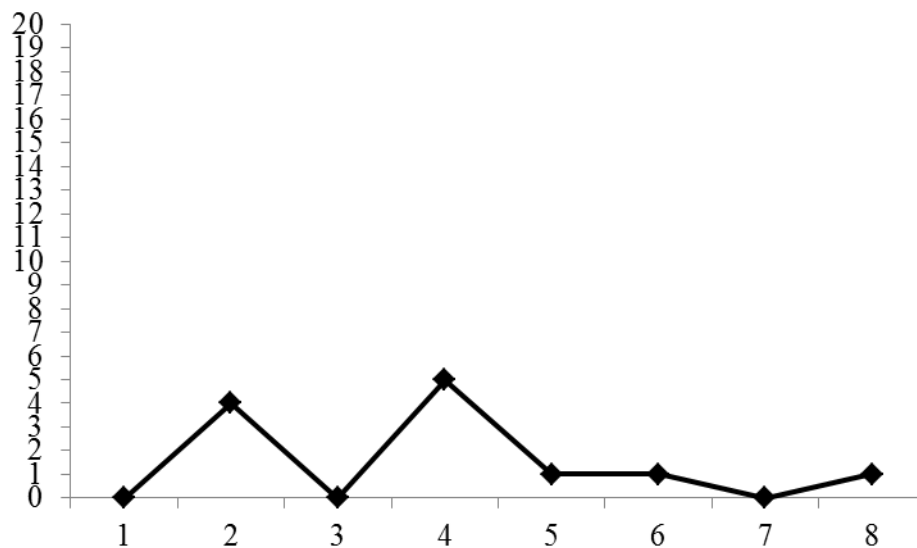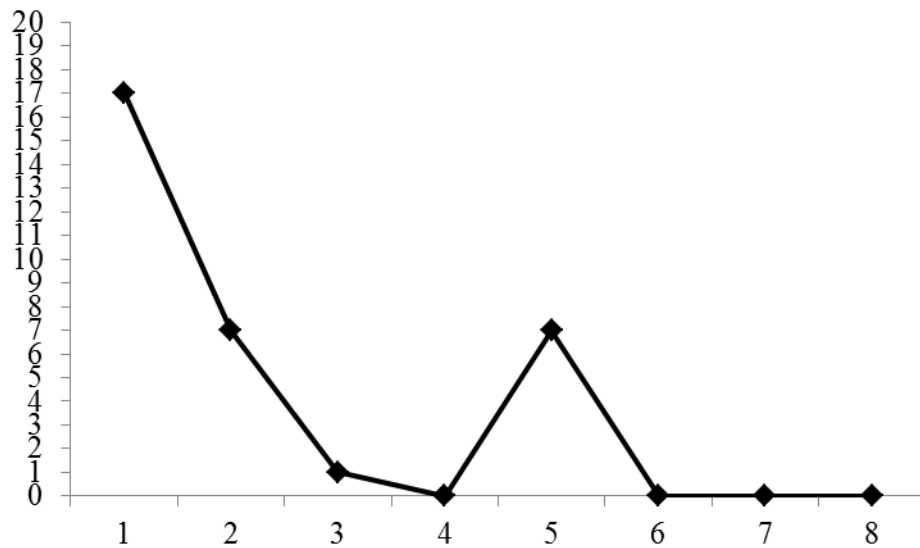

Figure 4.30. Case E weekly reflection-for-action microblog posting numbers

During the interviews, Case E talked about her experience of using microblog before microteaching. She said, "I only feel that it is more important to have reflection before the class." However, she also admitted that she had the limited reflection-for-

action. She said, "I had so many things to do this week ...... [,so] I had the little reflection before the class ...... Other people also had the little before-class discussions."

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

Comparing with using microblog to conduct reflective practice before microteaching, Case E had a much higher frequency of using microblog to conduct reflective practice during microteaching. Figure 4.31 illustrates that she had 32 reflection-in-action (the reflection practice happened during the class) microblog postings, which accounted for 71.1% of her total postings. The figure also shows that the number of her weekly reflection-for-action posting number changed dramatically, from 17 to 0.

Figure 4.31. Case E weekly reflection-in-action microblog posting numbers

175

During the interviews, Case E talked about her experience of using microblog during microteaching. In Week 1, she said,

It is pretty difficult for pre-service teachers to teach on the stage while looking at what the others are talking about [on microblog]. But it should not be a problem for experienced in-service teachers. Pre-service teachers still need more teaching skills training. How can it be possible for them to conduct several tasks at the same time without a little more experience?

However, she was not too discouraged about this, as she said,

It takes some time. At the beginning, it could be disturbing for us to simply post comments on microblog ......Well, ["disturbing"] means that I do not get used to microblog yet, so I cannot concentrate on the class well when I am trying to post comments on microblog.

In the following weeks, she consistently talked about the difficulty of handling teaching and using microblog at the same time. In Week 4, she said, "I just feel that it is very difficult to look at microblog while teaching. I do not have the ability of doing the two things at the same time." In Week 7, she said, "I dislike using cell phone [to access microblog] while participating in the class." In Week 8, she said,

I have not used microblog in the class for a while ...... At that moment, I just thought about how to deliver the teaching contents which I prepared to the others, so I did not change my teaching because of the others' [comments].

Q2.3: Did the research participant use microblog to conduct reflective practice after microteaching? How often?

Case E rarely used microblog to conduct reflective practice after microteaching. Figure 4.32 illustrates that she had only 1 reflection-on-action (the reflection practice happened after the class) microblog postings, which accounted for only 2.2% of her total postings.
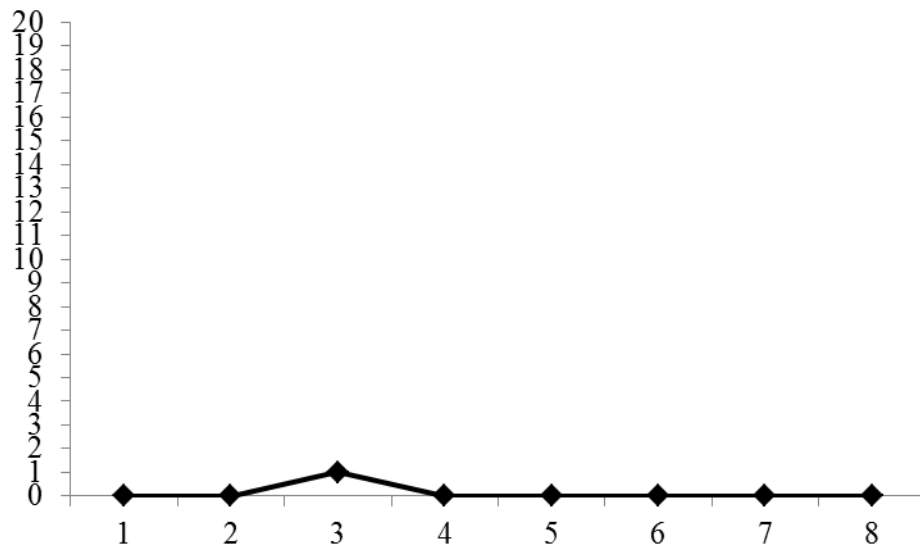
Figure 4.32. Case E weekly reflection-on-action microblog posting numbers

Q3.1: Did the research participant connect China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching?

Case E connected China's social or cultural issues with her experience of using microblog for her reflective practice in microteaching. In Week 1, she said,

> Maybe we can say that Chinese like to be indirect ...... Some classmates seriously need more microteaching training. Certainly some people had direct comments, but generally everyone are trying to be indirect ...... [We] are trying to talk about the positive side. If there are some teaching problems, we like to talk about these problems in indirect ways, such as "it will be even better if you can ....".

She also said,

> Whenever speaking with someone in person or on microblog, I feel that I should not say too much. If I say too much while I am not really skilled, it is just like the Chinese saying, "never show off skills before an expert".

In Week 3, she still believed that she should have most "cheer up" comments on microblog. She said,

> It is just the beginning [of the microteaching course], so I do not want to point out others' weaknesses directly. But in the following weeks I will be more direct. This is just my opinion. At the beginning, I want most "cheer up" comments [on microblog].

In Week 4, mentioned the influence of Chinese traditional culture she once again, as she said,

Well, we are Chinese. Our thinking must be different from that in western countries: [We] usually worry about that ourselves are not skills while giving wrong comments to others. It just means that I have not good teaching skills. If I do not give correct comment to others, I do not know how they feel [about me] ...... The instructor is just like us. Some classmates never had microteaching training in their undergraduate program, so even they knew by themselves that their microteaching was not good. The instructor could only make indirect comments to help them.

Additionally, Case E also talked about the economic pressure that Chinese pre-service teachers usually had. She said,

> Even if the university provides us monthly stipend, the money is still not enough. The inflation in China gives Chinese young people a lot of pressure ...... I really need to figure out how to manage money ...... If I do not take some part-time jobs at weekends, who can help to feed me? ...... Most of us are from rural areas, so our parents are depend on us ...... If I do not [have money to] buy a house, where will my parents live?

Q3.2: Did the research participant connect her school settings with her experience of using microblog for her reflective practice in microteaching?

Case E connected her school settings with her experience of using microblog for her reflective practice in microteaching. First, Case E thought that she had too much coursework, as she said, "This semester our schedule is totally full ...... One of the professors is only available at weekends to teach us".

Second, she mentioned the poor Internet connection at the university. She said, "All the people in our college use a same account to log in the campus network, so it is very slow ...... The wireless network is almost broken ...... Even cell phones have problem of connecting the Internet".

Finally, she mentioned that there was no video recording equipment in the microteaching classroom, so she said, "Almost all the people in the class recorded a little of their microteaching by their own cell phones ...... I feel that it is a great idea to record [our microteaching] and put on microblog."

Q3.3: Did the research participant connect her microteaching course settings with her experience of using microblog for her reflective practice in microteaching?

Case E connected her microteaching course settings with her experience of using microblog for her reflective practice in microteaching. First, she mentioned the tight class schedule. She said, "The class schedule was very tight so that I rarely thought about looking at microblog in the class." Furthermore, she believed that the tight class schedule also made she have little time to make face-to-face comments in the class, as she said, "there was no time left after the instructor made comments." Therefore, from her perspective, microblog became the only channel for her to have her voice heard.

Second, she pointed out that there was little after-class communication in the course, as she said, "I have never met the instructor after the class." Therefore, she thought that microblog provided a platform for everyone in the class to make comments in the class and after the class.

Q3.4: Did the research participant connect her personal life experience with her experience of using microblog for her reflective practice in microteaching?

Case E connected her personal life experience with her experience of using microblog for her reflective practice in microteaching. First, Case E thought that she had very limited microblog experience before this study, as she said, "I am kind of persons who do like to change. I do not have the patience of learning how to use microblog ……
I rarely used [microblog], so I feel that many issues in microblog are difficult to understand."

Second, she preferred to use cell phone to access microblog. She said, "My laptop is too heavy, while my cell phone is light and easy to carry. I worry about that it is inconvenient to [carry my laptop] to go somewhere. My residence is too far [from the microteaching classroom]."

Finally, she talked about her personality which had impact on how she used microblog for her reflective practice in microteaching. She said,

> I dislike discussions and I am not good at them, either ...... I still have little
> understanding of reflection practice. Sometimes I really want to have some
> comments ...... But I feel that currently I do not have such an ability ......
> [Therefore,] I put more focus on the face-to-face communication with the
> audiences in the class and observe their behaviors.

Case Summary

Table 4.6 demonstrates the following findings from Case E: First of all, Case E's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service

teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case E had the mixed positive and negative but more negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, Case E did not feel surprised or excited. She thought it was an interesting idea with a sense of creativity, but she also worried about that direct microblog comments could make others discouraged. Therefore, she believed that it was better for her to get familiar with microblog first. In the middle of this study, she had the more negative experience. She did not know how to use microblog. She felt that it was inconvenient. At the end of this study, she felt a little exhausted. She thought that microblog postings were meaningless. Furthermore, although she had middle-level satisfaction scores regarding using microblog for her reflective practice in microteaching during this study, her frequency of using microblog decreased dramatically. Her reflective writings and microblog postings also showed that she did not have the high-level reflective thinking or use any complex microblog functions throughout this study.

Second, Case E's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case E changed her typical reflective practice in microteaching in this study. She conducted reflection-for-action but not often. She rarely conducted reflection-on-action. But she conducted much more reflection-in-action.

Finally, Case E's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using

182

microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case E experienced the unique sociocultural influences when using microblog for her reflective practice in microteaching. Regarding China's social-cultural issues, she thought that Chinese liked to be indirect. She also mentioned the economic pressure which forced her to take part-time jobs. Regarding the school settings, she talked about the heavy coursework, the poor Internet connection at the university, and the microteaching classroom without video recording equipment. Regarding the course settings, she mentioned the tight class schedule and the little after-class communication. Regarding the personal life experience, she felt that she had very limited microblog experience. She also preferred to use cell phone to access microblog. She also disliked discussions and believed that she was not good at them.

Table 4.6

Case E Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• not surprised or excited • using microblog was an interesting idea • worried about that microblog comments discouraged others • it would be better when we got used to microblog ↓ • experienced negative issues • did not know how to use microblog • inconvenient to use microblog for microteaching ↓ • more frustrated • microblog postings were so meaningless	mixed positive and negative but more negative experience
	Q1.2	from very high to very low frequency of using microblog	
	Q1.3	the middle to low-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	conducted reflection-for-action but not often	changed typical reflective practice in microteaching
	Q2.2	conducted reflection-in-action and more often	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	Chinese liked to be implicit rather than being direct the high economic pressure	unique social-cultural influences
	Q3.2	the poor Internet connection at the university the heavy coursework no video recording equipment in the microteaching classroom	
	Q3.3	the tight class schedule the little after-class communication except microblog	
	Q3.4	the limited microblog experience use cell phone to access microblog disliked discussions	

Case F

This section discusses Case F through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case Background

Case F was a 25-year-old female pre-service teacher from a city in Gansu Province in China. This was first year in the M.Ed. program in Curriculum & Instruction with the focus on Physics Education.

Her undergraduate major was Educational Technologies. Although her undergraduate major was related to education, she did not get a chance to learn education well. Therefore, she decided to take this graduate program.

She did not have the microteaching experience in her undergraduate program, but she admitted that microteaching could help to find out her weaknesses. Regarding the relationship between teaching and reflective practice, she believed that reflective practice could notify her about what she should avoid at next time. She thought that her reflective practice capability was at the average level. The problem was that, even if she had reflective practice, she would usually have the similar problems later. She said, "I guess

that it is because I do not have a serious reflective practice, or you can say that I do not pay enough attention to my own weaknesses."

She did not have pre-service teaching experience in real classroom settings because she were busy preparing for her graduate program admission.

She planned to be a K-12 school teacher. She wanted to be a good teacher for students, who can provide help to students somehow.

She did not use computers or smart phones often.

She did not have any particular hobbies besides watching TV.

Q1.1: Did the research participant have a good attitude towards using microblog for her reflective practice in microteaching?

Case F reported her weekly satisfaction scores for using microblog for her reflective practice in microteaching throughout this study. The result is displayed by Figure 4.33. It was found that Case F had the middle-level satisfaction score towards at the beginning of this study. The score eventually went up to the high level in the middle weeks and stayed there until the end of this study.
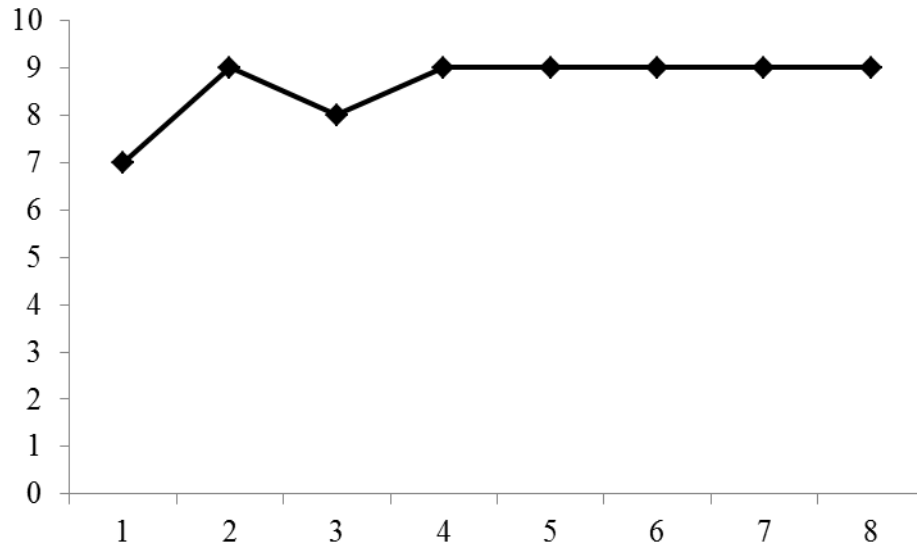
Figure 4.33 Case F weekly satisfaction scores

However, the above satisfaction scores were different from what was learned

from Case F's interviews. At the beginning of this study, on the one hand, Case F felt

satisfied about using microblog for her reflection practice in microteaching. In Week 1,

she said,

I like [microblog]. I feel that our class keeps up with the trend ...... This was our

first time. We were not familiar with [microblog] at the very beginning. But

everything looked fine after a little more practice ...... I did not remember how

many comments I posted, but it was a lot ...... I like to read the instructor's

comments on microblog about our microteaching ...... I found that all our

classmates were very excited about this.

She also found the strengths of using microblog in microteaching, as she said,

I can see the previous comments on microblog, but I cannot do so on QQ ...... I can make comments on microblog whenever I like. When I find out any teaching problems during someone's microteaching, I can post my comments. If I make comments in person, I have to wait for someone to finish microteaching before I can make comments and sometimes I just forget the comments I have during the microteaching.

On the other hand, she also found the weaknesses of using microblog in microteaching. She said,

I can use cell phone to reply others on QQ, but I cannot do so on microblog ...... Because I used my cell phone to post comments on microblog, [the microblog app on my cell phone] did not allow me to reply others' comments ......

She also said, "Many of my classmates used cell phone [to visit microblog] and some of them just opened their microblog accounts. They were not familiar with [microblog], so they posted few comments."

In Week 2, Case F felt that the people in the class got more familiar with microblog, but she also said, "The discussions on microblog cannot replace the instructor's discussions in class since the instructor can discuss much more details in person."

However, since Week 3, Case F has changed her attitude significantly. In Week 3, she said, "The network was not good, so I rarely post comments [on microblog] ...... I was too busy this week, so I did not post comments [on microblog]." In Week 4, she said, "I still believe that using microblog in microteaching is an effective way of improving

our teaching skills". At the same time, however, she also said, "I did not post comments [on microblog]. The computer network was almost broken. I just used cell phone to read [the comments on microblog]."

From Case F's postings on microblog, it was also found that she was excited to use microblog at the beginning of this study. For example, in Week 1 and Week 2, she had the following postings on microblog:

Hohoho, I am coming.

......

Cheer up.

......

So cool.

......

So calm. Cheer up.

However, such excitement could not be found from her microblog postings since Week 3.

Q1.2: Did the research participants have a high frequency of using microblog for her reflective practice in microteaching?

It was found that Case F used microblog during the eight weeks but not often. Figure 4.34 demonstrates that she had a total of 27 microblog postings. The figure also shows that her weekly microblog posting number changed dramatically over the eight weeks, ranging from 0 to 9.
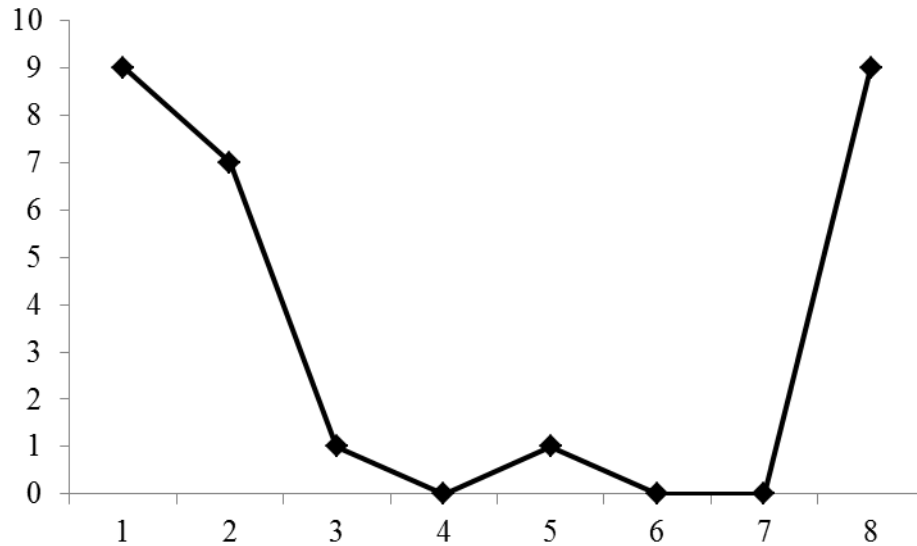
Figure 4.34. Case F weekly microblog posting numbers

Q1.3: Did the research participant have high quality reflective thinking when using microblog for her reflective practice in microteaching?

Case F had four microteaching practices during the eight weeks, and she filed a reflective writing for each of the first three practices. The grading result based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991) is displayed by Figure 4.35. The figure demonstrates that Case F had only Level 2 ("simple, layperson description") reflective thinking throughout this study. For example, in her first reflective writing, she wrote, "My handwriting is terrible. I need to have more practice."

Additionally, compared with her reflective writings, most of her microblog postings only had Level 2 ("simple, layperson description") reflective thinking, such as "Your handwriting is very good." Furthermore, her microblog postings also showed that

she rarely used the reply function on microblog but she never used any more complex

microblog functions, such as the # symbol or hashtag.
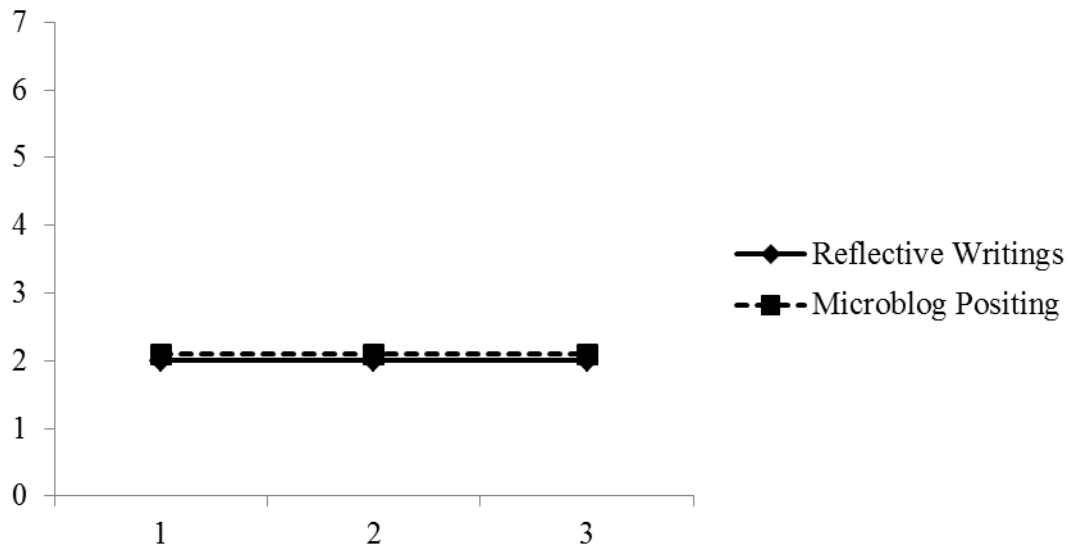
Figure 4.35. Case F reflective thinking levels

Q2.1: Did the research participant use microblog to conduct reflective practice before

microteaching? How often?

Case F rarely used microblog to conduct reflective practice before microteaching.

Figure 4.36 illustrates that she only had 3 reflection-for-action (the reflection practice

happened before the class) microblog postings, which accounted for 11.1% of her total

microblog postings. The figure also shows that Case F had not any reflection-for-action

microblog postings in the six weeks.
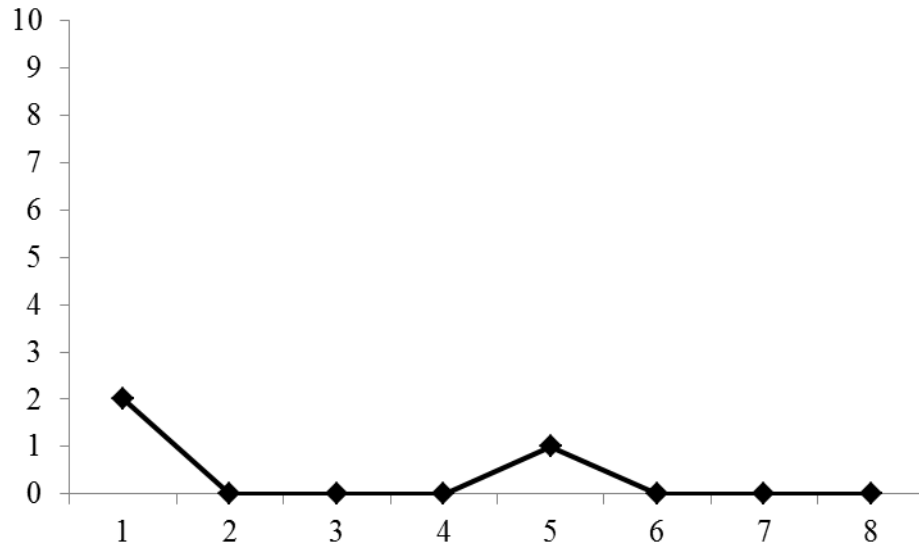
Figure 4.36. Case F weekly reflection-for-action microblog posting numbers

During the interviews, Case F rarely talked about how she used microblog to conduct reflective practice before microteaching. But it seemed that she was very busy after school. In several interviews, she requested the researcher to reduce the interview time so that she could catch her busy schedule.

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

Comparing with using microblog to conduct reflective practice before microteaching, Case F had a slightly higher frequency of using microblog to conduct reflective practice during microteaching. Figure 4.37 illustrates that she had 18 reflection-in-action (the reflection practice happened during the class) microblog postings, which

192

accounted for 66.7% of her total microblog postings. The figure also shows that her

weekly reflection-for-action posting number changed significantly, from 0 to 7.
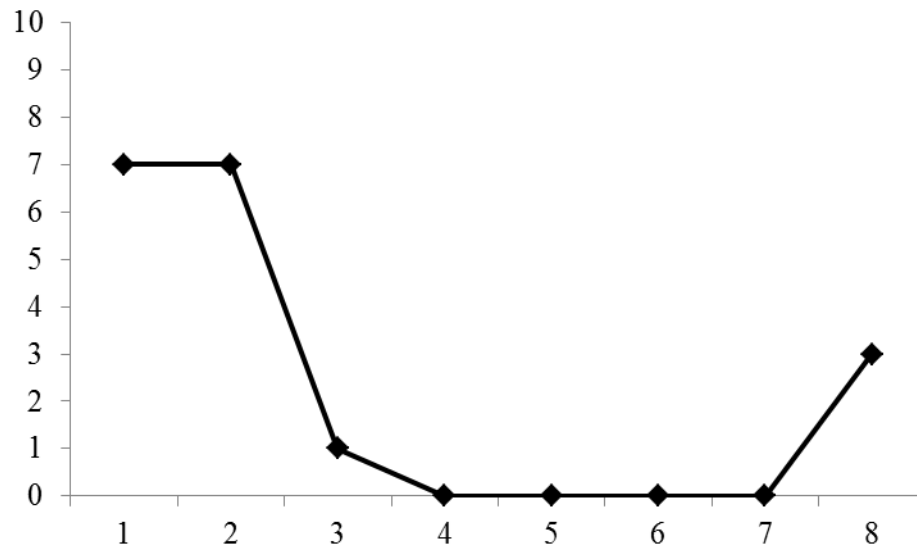
Figure 4.37. Case F weekly reflection-in-action microblog posting numbers

During the interviews, Case F talked about her experience of using microblog

during microteaching. She agreed that it was a good idea to have instant comments

during microteaching, as she said, "If the network is good, it is better to criticize

microteaching right away in the class." However, she did not do so, as she said, "I only

focused on my microteaching, so I did not look at microblog [when doing microteaching]

...... I should be able to [look at microblog at the same time]. I just need to prepare it well

before the class."

Q2.3: Did the research participant use microblog to conduct reflective practice after microteaching? How often?

Case F rarely used microblog to conduct reflective practice after microteaching. Figure 4.38 illustrates that she had only 6 reflection-on-action (the reflection practice happened after the class) microblog postings, which accounted for 21.9% of her total microblog postings. The figure also shows that all her reflection-on-action microblog postings were in the last week.
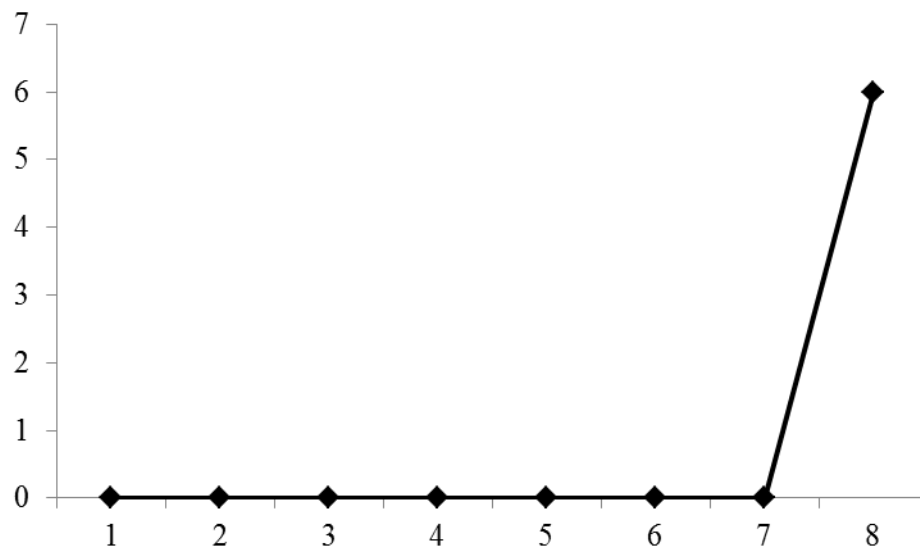
Figure 4.38. Case F weekly reflection-on-action microblog posting numbers

During the interviews, Case F talked about her experience of using microblog after microteaching. She believed that the reflection practice should be conducted after microteaching. However, she also said,

The main problem was that we had so many courses and the network was not

good. Therefore, I used little microblog after the class …… Perhaps others were

also very busy after the class, so few of them use microblog after the class.

Q3.1: Did the research participant connect China's social or cultural issues with her

experience of using microblog for her reflective practice in microteaching?

Case F connected China's social or cultural issues with her experience of using

microblog for her reflective practice in microteaching. She thought that she disliked too

many negative comments on microblog, as she said, "Too many negative comments can

hurt our Chinese students' confidence."

Q3.2: Did the research participant connect her school settings with her experience of

using microblog for her reflective practice in microteaching?

Case F connected her school settings with her experience of using microblog for

her reflective practice in microteaching. First, she mentioned the heavy coursework. She

said, "This semester I have so many courses, so [I have no time for microblog] …… We

are even required to have classes at weekends."

Second, she consistently complained about the poor Internet connection at the

university. In Week 3, she said, "The Internet connection [in the microteaching

classroom] was not good, so I rarely used [microblog]." In Week 4, she said, "The

Internet connection was not good, so I rarely use [microblog] ...... I could only use my

cell phone to look at [microblog]." In Week 5, she said, "The Internet connection was not

good ...... My laptop could not connect the Internet at my dorm, either. I could not even

use my cell phone to access the Internet". In Week 7, she said, "The network was not

good and very slow." In Week 8, she said, "The network at the university was so poor that I hardly used [microblog]."

Q3.3: Did the research participant connect her microteaching course settings with her experience of using microblog for her reflective practice in microteaching?

Case F did not connect her microteaching course settings with her experience of using microblog for her reflective practice in microteaching. From the interviews, the researcher did not find out any data related to Case F about her course settings with her experience of using microblog for reflective practice in microteaching. She also said, "I do not have anything which I like or dislike in the class."

Q3.4: Did the research participant connect her personal life experience with her experience of using microblog for her reflective practice in microteaching?

Case F connected her personal life experience with her experience of using microblog for her reflective practice in microteaching. First, she talked about her busy schedule. During the several interviews, she consistently said, "I was very busy."

Second, she thought that she preferred the traditional paper-based reflection. She said, "Personally I like the paper-based reflection [rather than the reflection on microblog]. Maybe different people have different preferences."

Case Summary

Table 4.7 demonstrates the following findings from Case F: First of all, Case F's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case F had

the mixed positive and negative but more negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, she liked microblog. She found both the strengths and the weaknesses of using microblog in microteaching. In the middle of this study, she felt that the people in the class got more familiar with microblog. At the end of this study, she still believed that using microblog in microteaching could improve teaching skills, but she rarely posted comments on microblog. Furthermore, although he had high-level satisfaction scores regarding using microblog for his reflective practice in microteaching during this study, his frequency of using microblog changed dramatically. Her reflective writings and microblog postings also showed that she did not have the high-level reflective thinking or use any complex microblog functions throughout this study.

Second, Case F's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case F changed her typical reflective practice in microteaching in this study. She rarely conducted reflection-for-action or reflection-on-action. But she conducted much more reflection-in-action.

Finally, Case F's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case F experienced the unique sociocultural influences when using microblog for her reflective practice in microteaching. Regarding China's social-cultural issues, she thought that too many negative comments could hurt Chinese students' confidence. Regarding the school settings, she talked about the heavy

197

coursework and the poor Internet connection at the university, and the microteaching

classroom without video recording equipment. Regarding the course settings, she did not

report any issues. Regarding the personal life experience, she highlighted her busy

personal schedule. She also believed that she preferred the traditional paper-based

reflection.

Table 4.7

Case F Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• using microblog was a new idea • found the strengths of microblog ↓ • we were more skilled ↓ • found the strengths of microblog • few microblog postings	mixed positive and negative but more negative experience
	Q1.2	very high to very low frequency of using microblog	
	Q1.3	the low-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	rarely conducted reflection-for-action	changed typical reflective practice in microteaching
	Q2.2	conducted reflection-in-action and more often	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	Chinese liked to be implicit rather than being direct	unique social-cultural influences
	Q3.2	the poor Internet connection at the university the heavy coursework	
	Q3.3	n/a	
	Q3.4	the busy personal schedule preferred other communication tools	

Case G

This section discusses Case G through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case Background

Case G was a 26-year-old male pre-service teacher from a village in Hainan Province in China. This was his first year in the M.Ed. program in Curriculum & Instruction with the focus on Physics Education.

His undergraduate major was Physics Education. He chose this major because he wanted to be a teacher. He decided to have graduate education since he believed that teacher positions would require higher education degrees in the future and he also wanted to expand his knowledge.

He had the microteaching experience in his undergraduate program, but he believed that he did not do well in that microteaching course. He thought that he was too nervous on the stage and he did not know how to link different knowledge points. He defined reflective practice as comparing his lesson plan with his actual teaching performance in order to improve his lesson plan. He believed that reflective practice looked for not only strengths but also weaknesses. Regarding the relationship between

teaching and reflective practice, he believed that reflective practice was used to resolve his teaching problems while keeping his strengths. He thought that he had the average reflective practice capability.

He had the pre-service teaching experience in a high school for two months to teach Physics. He found that the biggest difference between microteaching and teaching in a real classroom was students. In a real classroom, he taught a much larger number of students and, at the same time, he also had to take care of the disciplines in the classroom. The major challenge for him in a real classroom was to respond to unexpected situations quickly.

He planned to be a K-12 school teacher after receiving his M.Ed. degree. He wanted to be a teacher who is helpful to students, knowledgeable, good at conversations, and flexible with a sense of humor.

He rarely used smart phones, but he used computers often.

Q1.1: Did the research participant have a good attitude towards using microblog for his reflective practice in microteaching?

Case G reported his weekly satisfaction scores for using microblog for his reflective practice in microteaching throughout this study. The result is displayed by Figure 4.39. It was found that Case G had the high satisfaction scores during this study. The figure also showed that the score even increased at the end of this study.
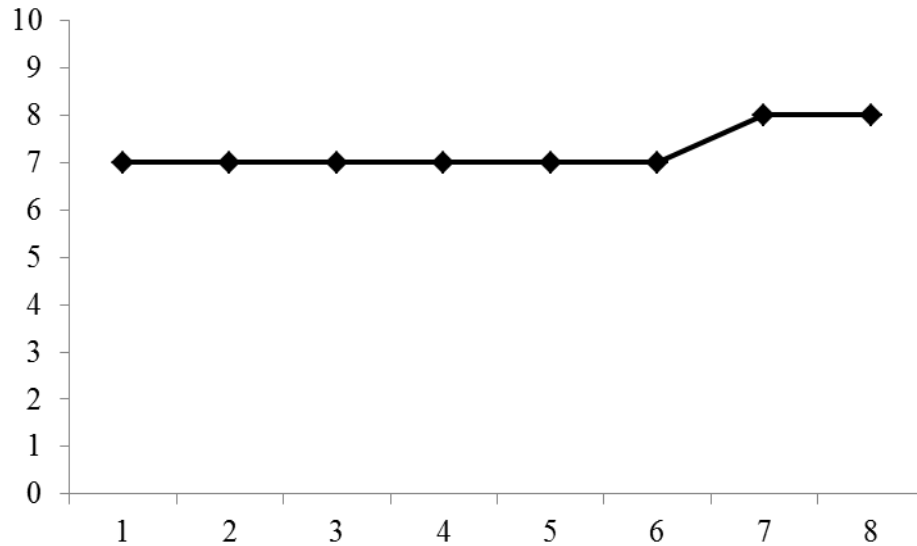
Figure 4.39. Case G weekly satisfaction scores

However, Case G's interviews told us a different story about his experience. In Week 1, Case G felt that using microblog for his reflective practice in microteaching was a fresh idea. He said, "I feel that it is a pretty good idea. Anyway, I never tried this before." Furthermore, he also found the strengths of using microblog for microteaching. He said, "[Using microblog], I can make comments right away, so usually I do not miss the issues which I want to talk about." At the same time, however, he also thought that he did not know microblog well, especially when using it on cell phone. He said, "When I make microblog comments on my cell phone, I cannot catch the speed of the microteaching ...... Maybe we have not been used to it. It should be better later."

Since Week 2, he experienced more negative issues of using microblog for his reflective practice in microteaching. In Week 2, although he agreed that he was much

more skilled at microblog, he found that he had little understanding of what he should post on microblog. He said, "I really do not know what I should post there. I just post most encouraging words, such as 'I am looking forward to your good performance'." In the following weeks, Case G consistently talked about the poor Internet connection. He said, "It was very difficult to use the Internet ...... Since my classmates did not visit microblog so often, they might not be able to reply quickly."

In the last two week, although Case G did not ignore the negative issues in the past several weeks, he agreed that there was still the value of using microblog for his reflective practice in microteaching. In Week 7, he said, "If we stopped using microblog, I would feel a little bit of pity since I lose a communication platform." In Week 8, he mentioned the benefit of using microblog for his microteaching. He said, "If I do not have microblog, I may forget about what the instructor tells me in the microteaching classroom. However, if I have microblog, I can review the comments about my microteaching, which help me improve my next microteaching practice. "

However, from Case G's postings on microblog, it was found that he used happy emotion icons throughout this study, such as:

......

......

His microblog positing showed that he had not the significant attitude change during the eight weeks.

Q1.2: Did the research participant have a high frequency of using microblog for his reflective practice in microteaching?

It was found that Case G had a slightly high frequency of using microblog during the eight weeks. Figure 4.40 demonstrates that he had a total of 55 microblog postings. The figure also shows that his weekly microblog postings number changed significantly over the eight weeks, ranging from 3 to 12.
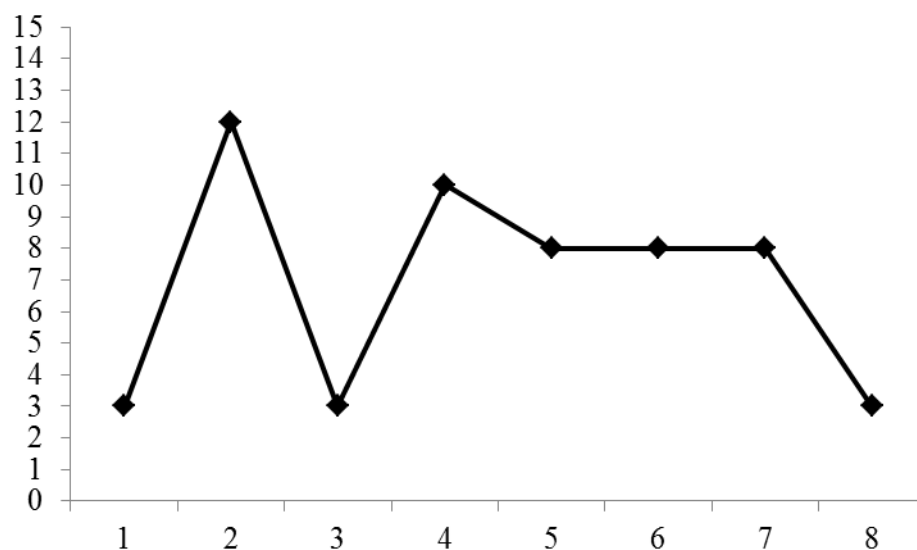
Figure 4.40. Case G weekly microblog posting numbers

Q1.3: Did the research participant have high quality reflective thinking when using microblog for his reflective practice in microteaching?

Case G had four microteaching practices during the eight weeks, and he filed a reflective writing for each of the first three practices. The grading result based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991) is displayed by Figure 4.41. . The figure demonstrates that his reflective writing had Level 2 ("simple, layperson description") reflective thinking. For example, in his last reflective writing, he wrote, " Before I always felt nervous whenever I conducted microteaching, but I do not have such a feeling now."

Additionally, most of his microblog postings only had Level 2 ("simple, layperson description") reflective thinking, such as "Each time you conduct microteaching, you show your progress." And he posted the same comment again in the following week. Furthermore, his microblog postings also showed that he used emotional icons and the reply function on microblog sometimes but he never used any more complex microblog functions, such as the # symbol or hashtag.
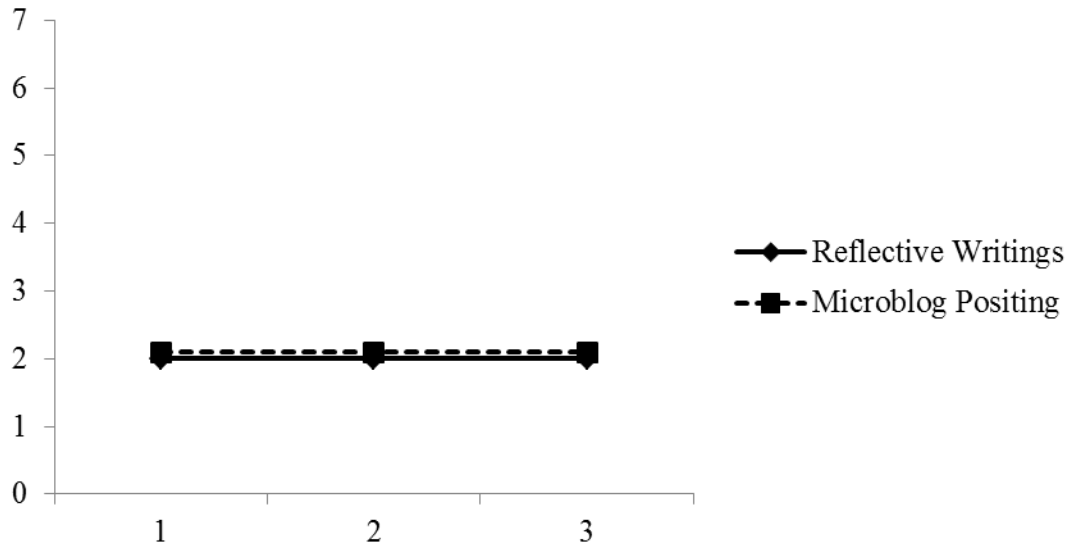
Figure 4.41. Case G reflective thinking levels

Q2.1: Did the research participant use microblog to conduct reflective practice before microteaching? How often?

Case G rarely used microblog to conduct reflective practice before microteaching. Figure 4.42 illustrates that he had a total of 11 reflection-for-action (the reflection practice happened before the class) microblog postings, which accounted for 20.0% of his total microblog postings. The figure also shows that his weekly reflection-for-action posting number varied, from 0 to 3.
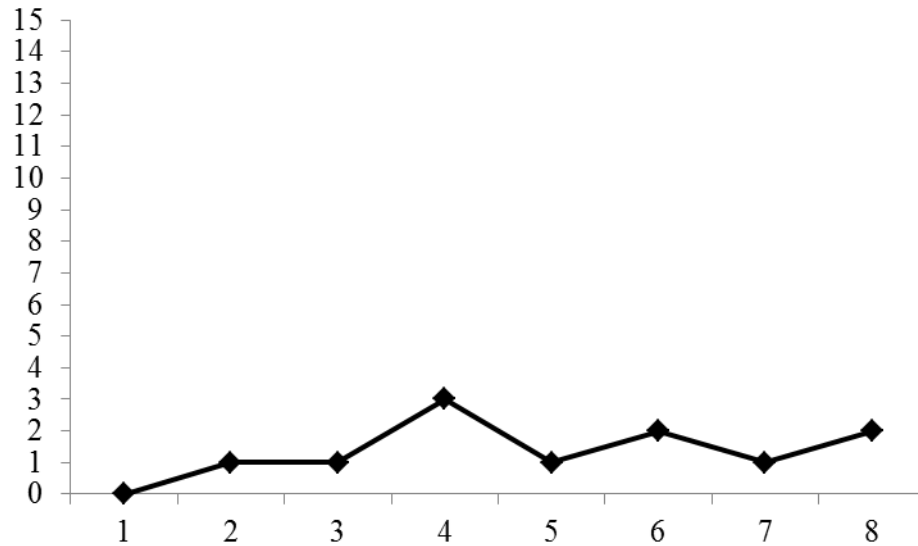
Figure 4.42. Case G weekly reflection-for-action microblog posting numbers

During the interviews, Case G rarely talked about how he used microblog to conduct reflective practice before microteaching. He only said, "I used microblog before the class, but I only posted my teaching topics there."

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

Comparing with using microblog to conduct reflective practice before microteaching, Case G had a much higher frequency of using microblog to conduct reflective practice during microteaching. Figure 4.43 illustrates that he had 40 reflection-in-action (the reflection practice happened during the class) microblog postings, which accounted for 72.7% of his total postings. The figure shows that his weekly reflection-in-action posting number changed dramatically, from 1 to 11. The figure also shows that

207

Case G had few reflection-in-action microblog postings at the beginning of this study. During the middle weeks, the number changed dramatically. In the last several weeks, the number gradually decreased to only 1.
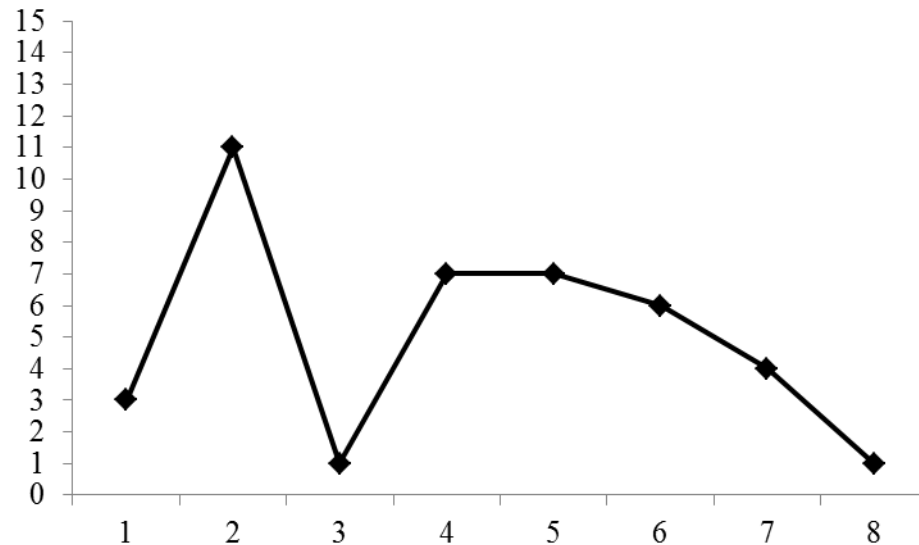
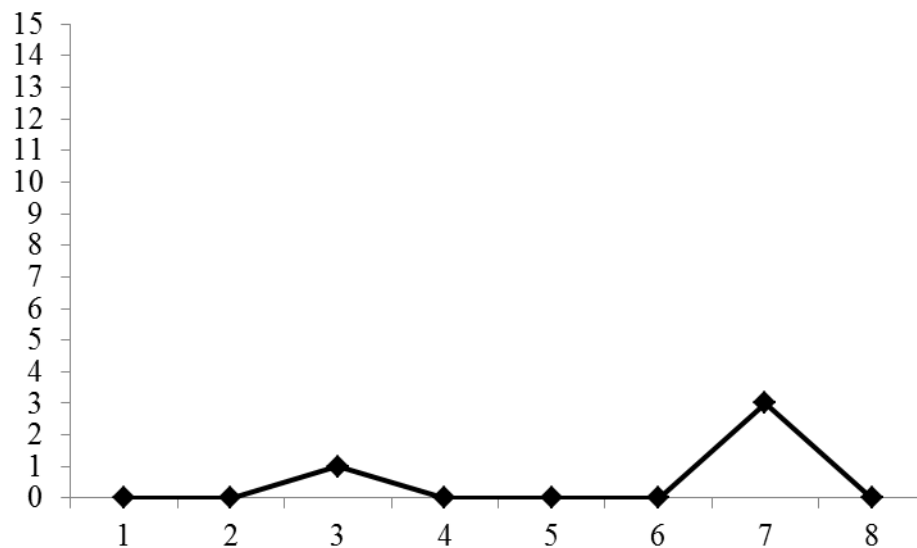*Figure 4.43*. Case G weekly reflection-in-action microblog posting numbers

During the interviews, Case G talked about his experience of using microblog during microteaching. He said,

If someone makes comments while you are in microteaching, how can you concentrate on microteaching? ...... [Therefore,] I do not pay attention to the comments on microblog when I am in microteaching. [Even if I see the comments on microblog], I will not change my microteaching.

He also said, "It is impossible to combine participating in microteaching and making comments [microblog] together." Therefore, as his conclusion, he said, "The reflection practice on microblog should happen before or after the class. There is no time for the reflection on microblog during the class."

Q2.3: Did the research participant use microblog to conduct reflective practice after microteaching? How often?

Case G rarely used microblog to conduct reflective practice after microteaching but too often. Figure 4.44 illustrates that he had only 4 reflection-on-action (the reflection practice happened after the class) microblog postings, which accounted for only 7.3% of his total microblog postings.

Figure 4.44. Case G weekly reflection-on-action microblog posting numbers

During the interviews, Case G rarely talked about how he used microblog to conduct reflective practice after microteaching, although he recognized the value of having reflection-on-action on microblog after microteaching. He said, "Using microblog for the reflection after the class is pretty good ...... When I go back home, I can look at my classmates and instructor's comments."

Q3.1: Did the research participant connect China's social or cultural issues with his experience of using microblog for his reflective practice in microteaching?

Through the interviews, the researcher did not find any evidence regarding how Case G connect China's social or cultural issues with his experience of using microblog for his reflective practice in microteaching.

Q3.2: Did the research participant connect his school settings with his experience of using microblog for his reflective practice in microteaching?

Case G connected his school settings with his experience of using microblog for his reflective practice in microteaching. During the interviews, he complained about the poor Internet connection at the university. He said, "The network speed was so slow. It took me so much time to submit a microblog posting. It really hurt my feeling. It made me so frustrated. "

Q3.3: Did the research participant connect his microteaching course settings with his experience of using microblog for his reflective practice in microteaching?

Case G connected his microteaching course settings with his experience of using microblog for his reflective practice in microteaching. During the interviews, he mentioned the tight schedule of the microteaching course. He said, "The course set a very

tight schedule for our microteaching …… We did not have enough time [to do something else besides microteaching itself]."

Furthermore, he also talked about that there was no after-class communication in this microteaching course. Therefore, microblog became the only channel for him to keep in touch with his classmates and instructor after the class.

Q3.4: Did the research participant connect his personal life experience with his experience of using microblog for his reflective practice in microteaching?

Case G connected his personal life experience with his experience of using microblog for his reflective practice in microteaching. First, Case G talked about that he did not have a personal preference of using microblog. He said that he liked to use QQ rather than microblog to keep in touch with his friends. He heard Twitter but knew little about the website. He said,

> How to use microblog in microteaching depends on each person. If a person likes using microblog, it should not be a problem. If a person does not like using microblog, he or she will be lazy to make comments on microblog ...... I do not get used to microblog. It has nothing to do with microblog. It is just my issue.

> Second, he talked about his passive personality. He said, "Perhaps I am pretty passive ...... I feel that it is enough for me to just read [the comments on microblog], so I do not feel that it is necessary to reply them." He also said, "Usually I like do some random stuff on the Internet. I cannot control myself [to concentrate on microblog when I am online]."

211

Case Summary

Table 4.8 demonstrates the following findings from Case G: First of all, Case G's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case G had the mixed positive and negative but more negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, he felt that using microblog for the reflective practice in microteaching was a fresh idea. He found the strengths of using microblog. But he also said that he did not get used to it. In the middle of this study, his experienced more negative issues of using microblog for his reflective practice in microteaching. He found that he had little understanding of what he should post on microblog. He consistently talked about the poor Internet connection. At the end of this study, he agreed that there was still a little value of using microblog for his reflective practice in microteaching. He believed that he could not recall what the instructor told him in the class without microblog. However, he also mentioned that he did not ignore the negative issues in the past several weeks. Furthermore, although he had high-level satisfaction scores regarding using microblog for his reflective practice in microteaching during this study, his frequency of using microblog changed dramatically. His reflective writings and microblog postings also showed that he did not have the high-level reflective thinking or use any complex microblog functions throughout this study.

Second, Case G's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case G changed his typical reflective

212

practice in microteaching in this study. He rarely conducted reflection-for-action or reflection-on-action. But he conducted much more reflection-in-action.

Finally, Case G's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case G experienced the unique sociocultural influences when using microblog for his reflective practice in microteaching. Regarding China's social-cultural issues, he did not report any issues. Regarding the school settings, he complained about the poor Internet connection at the university. Regarding the course settings, he talked about the tight course schedule which left little time for any extra activities except microteaching itself. He also mentioned that there was no after-class communication in this microteaching course except microblog. Regarding the personal life experience, he claimed that he liked to use QQ rather than microblog. He also believed that he had a passive personality.

Table 4.8

Case G Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• using microblog was a good idea • found the strengths of microblog • it would be better when we got used to microblog ↓ • experienced negative issues • did not know how to use microblog ↓ • found the strengths of microblog	mixed positive and negative but more negative experience
	Q1.2	from very high to very low frequency of using microblog	
	Q1.3	the low-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	rarely conducted reflection-for-action	changed typical reflective practice in microteaching
	Q2.2	conducted reflection-in-action and more often	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	n/a	unique social-cultural influences
	Q3.2	the poor Internet connection at the university	
	Q3.3	the tight class schedule the little after-class communication except microblog	
	Q3.4	preferred other communication tools the passive personality	

Case H

This section discusses Case H through the following processes: First of all, the case background is presented. Second, the case is discussed by the order of the data selection questions. Within each data selection question, the technique of time-series analysis is used to explore if there are any pattern changes in the case over the eight weeks. Within each individual week, the technique of pattern matching is used to identify if the patterns collected from the case match the research proposition. Finally, the findings from the case are summarized at the end of the section.

Case Background

Case H was a 23-year-old male pre-service teacher from a village in Sichuan Province in China. This was his first year in the M.S. program in Subject Education with the focus on Physics Education.

His undergraduate major was Physics Education. He applied for Mathematics Education but was assigned by the university to Physics Education. He decided to have graduate education because he found that it was not easy to get a good job with a Bachelor's degree and he also wanted to improve himself.

He had the microteaching experience of in his undergraduate program, and he thought that he did pretty well in that microteaching course. He defined reflective practice as reviewing what he has done to find out his strengths and weaknesses so that he could improve himself. He believed that he should improve his reflective practice capability. For example, he said, "Sometimes I am unable to give a comprehensive

evaluation." Regarding the relationship between teaching and reflective practice, he believed that the two depend on each other.

He had the pre-service teaching experience in a high school for seven months to teach Physics. He found that the big difference between microteaching and teaching in a real classroom was that there were much more students in a real classroom. Because of so many students, there could be more unexpected situations there, which was the biggest challenge for him.

He planned to be a K-12 school teacher or to do something else after receiving the M.S. degree. He wanted to be a researcher-style teacher.

He used computers and smart phones often.

His hobbies included playing basketball and watching soccer games.

Q1.1: Did the research participant have a good attitude towards using microblog for his reflective practice in microteaching?

Case H reported his weekly satisfaction scores for using microblog for his reflective practice in microteaching throughout this study. The result is displayed by Figure 4.45. It was found that, at the beginning of this study, Case H had a middle-level satisfaction score. The score changed slightly over the following weeks, and it eventually ended at a higher level.
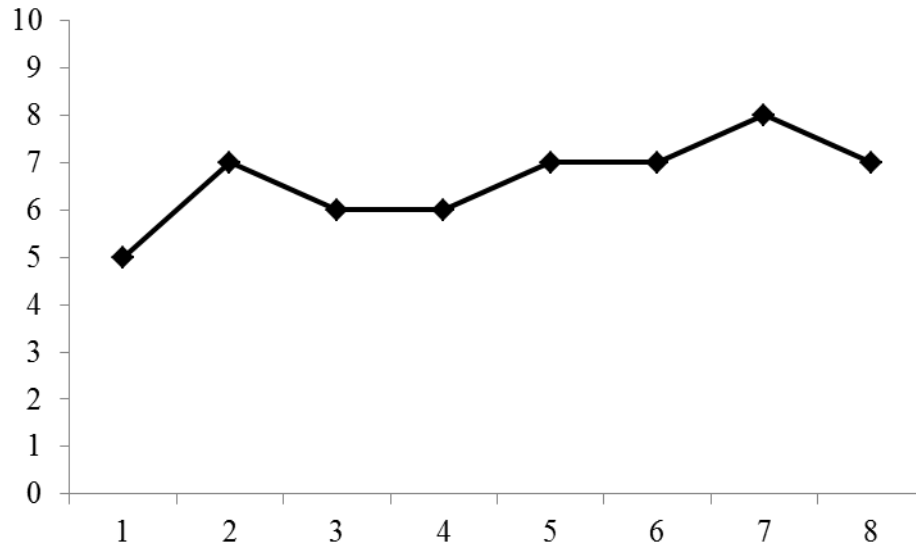
Figure 4.45. Case H weekly satisfaction scores

However, Case H's interviews demonstrated his experience in a different way. In Week 1, he said, "It is a very new idea ...... It is a good idea under the condition of using microblog frequently." He also said,

> This was our first time, so not all the people used microblog. Not all the people on the stage looked at the comments on microblog. Some people knew little about microblog. All the people just began to get familiar [with microblog], but were also looking forward to [use microblog to] improve their teaching skills.

> In Week 2, on the one hand, he said, "More people participated in microblog ...... because we were more familiar [with microblog] ...... Microblog provides a casual and relaxed communication platform." On the other hand, he also said, "I felt that most of the

comments [on microblog] were encouraging, praising, or suggestive, while very few people pointed out others' drawbacks directly."

In Week 3, he emphasized the strengths of microblog for his reflective practice in microteaching. He said, "It is faster to use microblog [to make comments]. If it is the face-to-face reflection, we have to wait to make comments one by one. But we can post our comments on microblog right away."

In Week 4, he said, "It seemed that there were not many postings on microblog but I felt that the atmosphere was still pretty good ...... There were a lot of encouraging postings."

In Week 5, he said, "Because of the network problem, microblog was rarely used ...... But everyone still had a very high passion of participating in microteaching and the discussion on microblog."

In Week 7, he said, "I did not feel that there were too many differences [between the reflection on microblog and that on other online communication tools] ...... But I am still more familiar with QQ, which cannot be changed in a short time."

In Week 8, he said, "Nothing significant changed. More people used microblog. The passion [of using microblog] was increasing ...... I felt that we worked as a team where we helped each other, learned from each other, and consistently improved ourselves."

From Case H's postings on microblog, it was also found that he was excited to use microblog at the beginning of this study. For example, in the first four weeks, he had the following postings on microblog:

👌

🤢

......😁

👍

🤭

However, such kind of happy expression could not be found from his microblog postings since Week 5.

Q1.2: Did the research participants have a high frequency of using microblog for his reflective practice in microteaching?

It was found that Case H had a slightly high frequency of using microblog during the eight weeks. Figure 4.46 demonstrates that he had a total of 71 microblog postings. The figure also shows that the number of his weekly microblog postings changed dramatically over the eight weeks, ranging from 2 to 24.
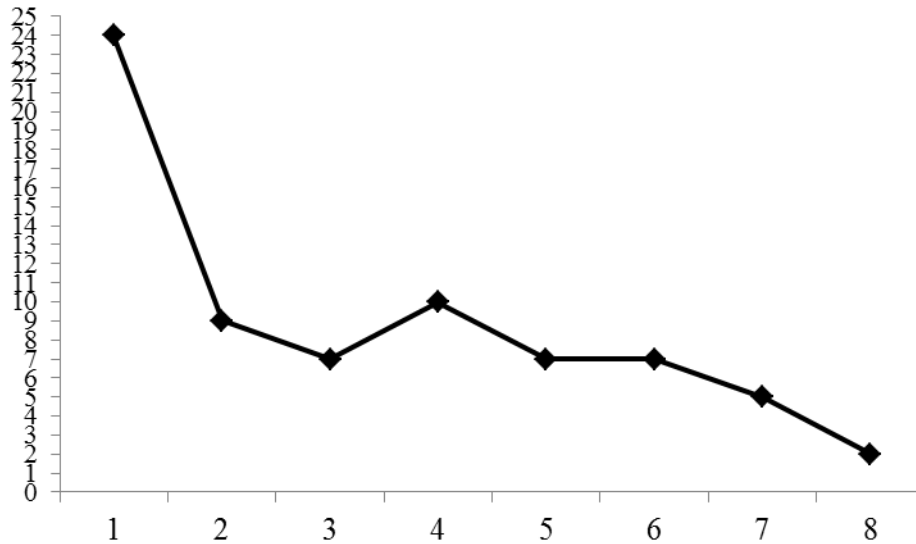
Figure 4.46. Case H weekly microblog posting numbers

Q1.3: Did the research participant have high quality reflective thinking when using microblog for his reflective practice in microteaching?

Case H had four microteaching practices during the eight weeks, and he filed a reflective writing for each of the first three practices. The grading result of his reflective writings based on the Framework for Reflective Thinking (Sparks-Langer et al., 1991) is displayed by Figure 4.47. The figure demonstrates that Case D had Level 4 ("explanation with tradition or personal preference given as the rationale") reflective thinking throughout this study. For example, in his last reflective writing, he wrote, "I did not explain the electric field intensity equation clearly. I should add the information that the electric field intensity presents the voltage within each distance unit in the electric field direction."

220

Additionally, compared with his reflective writings, most of his microblog postings only had Level 2 ("simple, layperson description") reflective thinking, such as "You are very good at handwriting." Furthermore, his microblog postings also showed that he used emotional icons and the reply function on microblog sometimes but he only used more complex microblog functions, such as the # symbol or hashtag, once throughout this study.
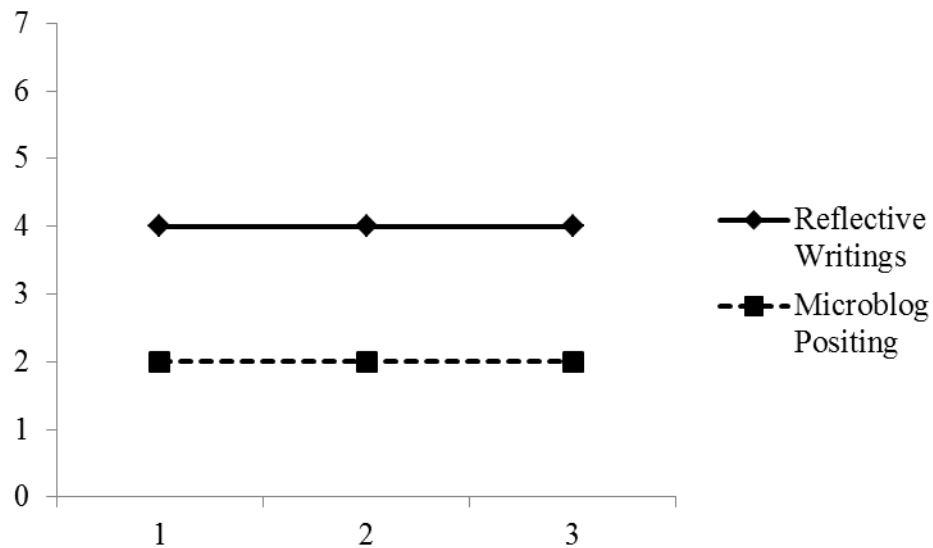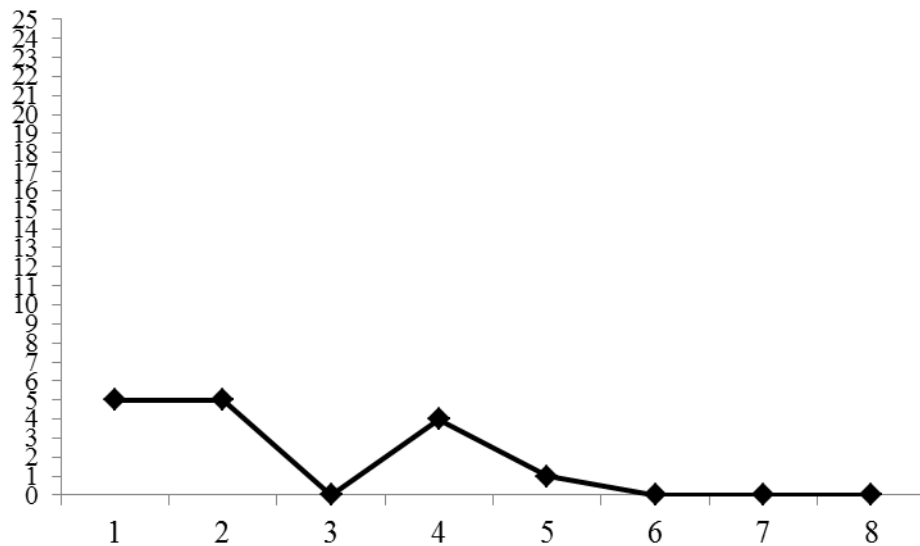

Figure 4.47. Case H reflective writing grades

Q2.1: Did the research participant use microblog to conduct reflective practice before microteaching? How often?

Case H used microblog to conduct reflection-for-action (the reflection practice happened before the class) microblog postings but not often. Figure 4.48 illustrates that

he had a total of 15 reflection-for-action microblog postings, which accounted for 21.1%

of his total microblog postings. The figure also shows that his weekly reflection-for-

action microblog posting number varied, from 0 to 5. The number was the highest at the

beginning of this study, but it eventually decreased to zero in the last three weeks.

Figure 4.48. Case H weekly reflection-for-action microblog posting numbers

During the interviews, Case H talked about how he used microblog to conduct

reflective practice before microteaching. Case H believed that microblog was useful for

preparing microteaching before the class. He said, "When we prepare microteaching, we

can use microblog to communicate, which is more convenient than the face-to-face

communication." However, on the other hand, he also agreed that there were few

microblog postings before the class. He said, "I guess that everyone is quite busy."

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

Comparing with using microblog to conduct reflective practice before microteaching, Case H had a much higher frequency of using microblog to conduct reflective practice during microteaching. Figure 4.49 illustrates that he had 53 reflection-in-action (the reflection practice happened during the class) microblog postings, which accounted for 74.6% of his total microblog postings. The figure also shows that the his weekly reflection-for-action microblog posting changed significantly, from 1 to 7.
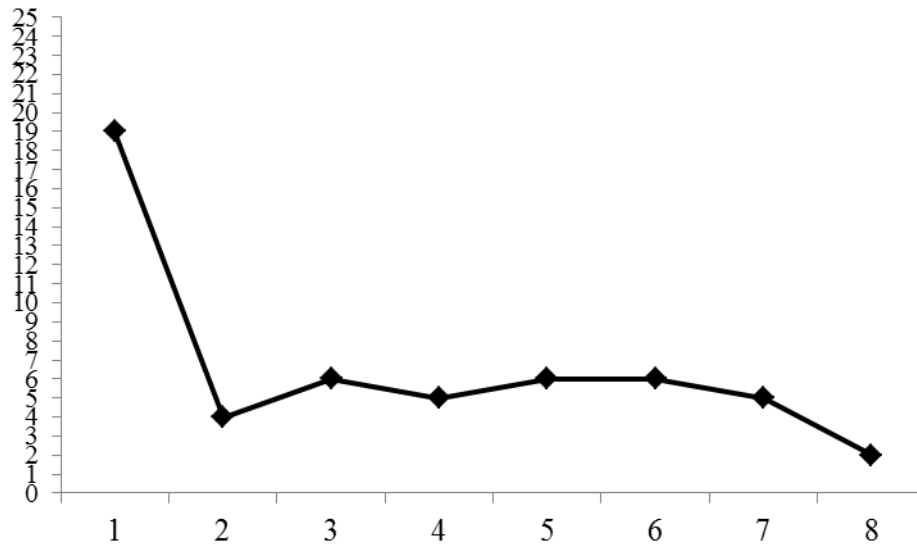
Figure 4.49. Case H weekly reflection-in-action microblog posting numbers

During the interviews, Case H talked about his experience of using microblog during microteaching. In Week 1, on the one hand, he said, "It is a good idea ...... it helps

us adjust our microteaching immediately." However, on the other hand, he said, "I guess that some people worried about that, if they had looked at the comments on microblog, the comments would have disturbed their microteaching ...... Therefore, they only concentrated on microteaching without looking at microblog."

In Week 2 when he had microteaching by himself, he admitted that he was unable to look at microblog to adjust his microteaching. He said,

> Actually I found that, although both the instructor and the students off stage could post problems, suggestions, and encouragement on microblog immediately, the student on the stage could not use these microblog comments very well ...... It seemed that I paid most of my attention to microteaching ...... [Using microblog during microteaching] is a challenging requirement. But if the student has a little break during microteaching, he or she should be able to see the comments on microblog.

He also said,

> I had a teaching plan in my mind already. Suddenly my thinking was interrupted by the comments on microblog. I felt a little dizzy …… Most of us are good enough at teaching gestures and language. Maybe our teaching contents might have some problems, which certainly cannot be fixed right away even if others pointed out during our microteaching.

In Week 8, when he reviewed his experience of using microblog during microteaching, he said,

> It is not practical to use microblog during microteaching because I never really implemented it throughout this course ...... It is really inconvenient to conduct

microteaching while looking at microblog except that you have very high

teaching skills. If I look at microblog [during my microteaching], it will disturb

my microteaching. It is just difficult to concentrate the two things at the same

time. ...... Some problems, such as accent, cannot be resolved immediately on

stage.

Q2.3: Did the research participant use microblog to conduct reflective practice after

microteaching? How often?

Case H rarely used microblog to conduct reflective practice after microteaching.

Figure 4.50 illustrates that he had only 3 reflection-on-action (the reflective practice

happened after the class) microblog postings, which accounted for 4.2% of his total

microblog postings.
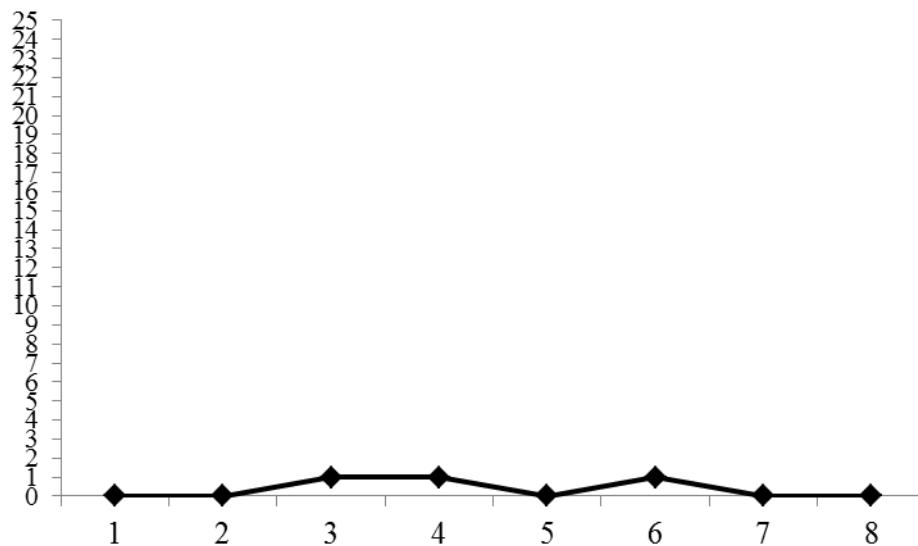
Figure 4.50. Case H weekly reflection-for-action microblog posting numbers

During the interviews, Case H talked about how he used microblog to conduct reflective practice after microteaching. On the one hand, he admitted the value of using microblog after microteaching. He said, "I used the comments on microblog after the class. There were a lot of useful information." On the other hand, however, he also believed that the comments on microblog had little influence on him. He said, "After your microteaching, the instructor and your classmates will tell you the problems in your microteaching, so you can write them down. Therefore, writing these comments on microblog is not really necessary."

Q3.1: Did the research participant connect China's social or cultural issues with his experience of using microblog for his reflective practice in microteaching?

Case H connected China's social or cultural issues with his experience of using microblog for his reflective practice in microteaching. First, he talked about Chinese students' characteristics. He said, "Our students are very kind and indirect ...... They worry about that too direct words would hurt or offend others ...... [Therefore,] their comments need to be indirect."

Second, he believed that Chinese students need to be motivated by their instructors. He said, "I think that Chinese students need instructors to motivate them. Their self-initiative is weak ...... They only do what their instructors tell them to do, or they do not do it."

Q3.2: Did the research participant connect his school settings with his experience of using microblog for reflective practice in microteaching?

Case H connected his school settings with his experience of using microblog for his reflective practice in microteaching. First, he talked about the inappropriate course plan in his program. He said,

> There should be many teaching related courses in my program, but they are not available. Therefore, in order to let us earn enough credits, [the university] asked us to take courses with the students in another program ...... To be honest, there is too little teaching practice in my program.

Second, he mentioned the heavy coursework in his program. He said, "We have 8 courses [in this semester] ...... We have classes from Monday to Sunday ...... We have at least a half day of classes every day."

Third, he pointed out the poor Internet connection at the university. He said, "The network has some problems. The wireless network at the microteaching classroom used to be very slow ......Now it's hardly to use." He also said, "If everyone can use cell phone to access microblog ...... we do not need to worry about the network problem. But it requires improving the microblog app."

Fourth, he talked about the limited microteaching classrooms. He said,

> We only have one decent microteaching classroom like this. We cannot find similar classrooms somewhere else ...... [The microteaching classrooms] are definitely not enough. There are so many students. It will be great to allow every student to have at least one microteaching practice in every week.

227

Fifth, he felt that the position of the projector in the microteaching classroom was not appropriate. He said, "I could only see the microblog when I was one meter away from the blackboard and faced the blackboard." He also said,

> The screen was not clear. I could not see it well .... The words were not big enough. It was a little difficult to figure them out …… And the speed of refreshing microblog web pages was a little slow ...... I felt that these were the obstacles for the student on the stage.

Q3.3: Did the research participant connect his microteaching course settings with his experience of using microblog for reflective practice in microteaching?

Case H connected his microteaching course settings with his experience of using microblog for his reflective practice in microteaching. He mentioned the limited interaction in the microteaching course. He said,

> Usually the instructor made comments, while few students said something ...... The instructor did not reserve time [for discussions] ...... She did not ask us to make comments, so we rarely said anything ...... Perhaps we really did not have anything to say, so we just let the instructor take care of all the comments .... But we could post our comments on microblog without restrictions.

Q3.4: Did the research participant connect his personal life experience with his experience of using microblog for his reflective practice in microteaching?

Case H connected his personal life experience with his experience of using microblog for his reflective practice in microteaching. First, he talked about his busy personal schedule. He said,

Almost all the students take part-time jobs at weekends ...... such as working as the teachers at some training institutes or working as home tutors ...... Here the training market is really huge. There are several hundred training institutes...... [Therefore,] we are a little busy. [The monthly stipend from the university] is really not enough for us, and we will face more economic pressure when we graduate. Therefore, we have to make some money right now. If not, how can we have enough money to buy a house and get married?

Second, he talked about that he was anxious about his future. He said,

Many of my undergraduate classmates already began to work, while I am still at school. Even if I get a Master's degree, it will not guarantee a good job. Time is being wasted, just like what the popular saying said, "plans cannot keep up with changes." Having a Master's degree just means that I have a better education background. I do not have any other advantages [compared with my undergraduate classmates].

Case Summary

Table 4.9 demonstrates the following findings from Case H: First of all, Case H's patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. Case H had the mixed positive and negative experience towards using microblog for his reflective practice in microteaching. At the beginning of this study, he felt that it was a very new idea to use microblog in microteaching. He believed that microblog could provide a casual and relaxed communication platform. But he also found that very few people

229

pointed out others' drawbacks directly on microblog. In the middle of this study, he admitted that it was faster to use microblog to make comments, but he also found that there were not many postings on microblog. At the end of this study, he believed that microblog helped them work as a team. At the same time, he also found that there were too many differences between the reflection on microblog and that on other online communication tools. He also felt that microblog was rarely used in this microteaching course. Furthermore, although he had high-level satisfaction scores regarding using microblog for his reflective practice in microteaching during this study and he had the slightly high frequency of using microblog, his reflective writings and microblog postings showed that he did not have the high-level reflective thinking and he rarely use any complex microblog functions throughout this study.

Second, Case H's patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. Case H changed his typical reflective practice in microteaching in this study. He conducted reflection-for-action but not often. He rarely conducted reflection-on-action. But he conducted much more reflection-in-action.

Finally, Case H's patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. Case H experienced the unique sociocultural influences when using microblog in his reflective practice in microteaching. Regarding China's social-cultural issues, he believed that Chinese students were very kind and indirect so that they

230

tried to avoid hurting or offending others. He also thought that Chinese students' self-initiative was weak so that they need more encourage from the instructor. Regarding the school settings, he mentioned the inappropriate course plan and the heavy coursework in his program, the poor Internet connection at the university, the limited microteaching classrooms, and the inappropriate projector location in the microteaching classroom. Regarding the course settings, he talked about the limited interaction in the microteaching course sot that he appreciated the communication on microblog. Regarding the personal life experience, he mentioned that his busy personal schedule and anxiety about his future.

Table 4.9

Case H Summary

Research Proposition	Data Selection Question	Findings	Conclusion
1	Q1.1	• using microblog was a new idea • microblog was a casual & relaxed communication platform • few weakness comments ↓ • found the strengths of microblog • few microblog postings ↓ • found the strengths of microblog • like other tools more • few microblog postings	mixed positive and negative experience
	Q1.2	from very high to very low frequency of using microblog	
	Q1.3	the middle-level reflective thinking in reflective writings the low-level reflective thinking in microblog postings	
2	Q2.1	conducted reflection-for-action but not often	changed typical reflective practice in microteaching
	Q2.2	conducted reflection-in-action and more often	
	Q2.3	rarely conducted reflection-on-action	
3	Q3.1	Chinese liked to be implicit rather than being direct Chinese students' weak self-initiative	unique social-cultural influences
	Q3.2	the poor Internet connection at the university the heavy coursework the inappropriate course plan the projector location problem at the microteaching classroom the limited microteaching classrooms	
	Q3.3	the little in-class communication except microblog	
	Q3.4	the busy personal schedule felt anxious about the future	

Cross-case Synthesis

Based on the findings from the eight cases, this section uses the technique of cross-case synthesis and the technique of logic model to explore the relationship among these cases. First, the technique of cross-case synthesis is applied to identify the common ground of these cases. The results are discussed by the order of the data selection questions and summarized for each research proposition. Then, based on the common ground of these cases, the technique of logic model is implemented to develop a logic chain of how Chinese pre-service teachers use microblog for their reflective practice in microteaching.

Q1.1: Did the research participants have a good attitude towards using microblog for their reflective practice in microteaching?

The previous sections exam each case individually by the technique of time-series analysis and the technique of pattern matching, and their patterns for Q1.1 are summarized by three time categories, the beginning, the middle, and the end of this study. Here the technique of cross-case synthesis is used to analyze Q1.1 patterns cross the eight cases: (a) Q1.1 patterns from all the cases are listed together. (b) Within each time category, the patterns are compared with one another. If one pattern is identified in two or more cases, it is recorded as a cross-case pattern. For example, in the category of the beginning of this study, "using microblog was a good idea" is located in Case A, Case B, Case D, and Case G. Therefore, it is listed as a cross-case pattern under this category. The results are presented by Table 4.10.

Table 4.10

Q1.1 Cross-case Synthesis

Case	The Beginning of This Study	The Middle of This Study	The End of This Study
A	• using microblog was a good idea • inconvenient to use microblog for microteaching • not too frustrated	• we were more excited • few weakness comments	• more frustrated • less passionate • few weakness comments
B	• using microblog was a good idea • a mess of figuring out how to do • took some time to learn • too nervous to look at microblog while doing microteaching	• we were more skilled • inconvenient to use microblog for microteaching • few weakness comments • microblog could not work with microteaching well	• less passionate • few microblog postings • like other tools more
C	• curious about microblog • both face-to-face and microblog reflection have strengths • not too frustrated	• we were more excited • few weakness comments	• more frustrated • few weakness comments • less passionate
D	• using microblog was a good idea • teaching skills were not good enough • it would be better when we got used to microblog	• we were more skilled • few weakness comments • inconvenient to use microblog for microteaching	• more frustrated • few microblog postings • few weakness comments
E	• not surprised or excited • using microblog was an interesting idea • worried about that microblog comments discouraged others • it would be better when we got used to microblog	• experienced negative issues • did not know how to use microblog • inconvenient to use microblog for microteaching	• more frustrated • microblog postings were so meaningless
F	• using microblog was a new idea • found the strengths of microblog	• we were more skilled	• found the strengths of microblog • few microblog postings

As indicated by Table 4.10, the research participants did not have a purely good attitude towards using microblog for their reflective practice in microteaching. They had the mixed positive and negative attitudes, and their attitudes changed during this study. At the beginning of this study, the research participants had the more positive attitudes. They believed that using microblog for their reflective practice in microteaching was a new and good idea. They found the strengths of microblog. Although they knew that it took some time to learn how to use microblog in microteaching, they believed that it would be better when they got used to it. Therefore, they were not too frustrated. During the middle of this study, the research participants showed the mixed positive and negative attitudes. They felt that they were more excited and more skilled about using microblog in microteaching. On the other hand, they also found that there were few weakness comments on microblog, and it was somehow inconvenient to use microblog for microteaching. At the end of this study, although the research participants admitted the strengths of microblog, they still liked other tools for their reflective practice in microteaching more. They also found that there were few microblog postings and even fewer weakness comments among these postings. They became less passionate and more frustrated.

Q1.2: Did the research participants have a high frequency of using microblog for their reflective practice in microteaching?

As illustrated by Figure 4.51, the research participants did not have a high frequency of using microblog for their reflective practice in microteaching. The figure also showed that all these research participants did not have a stable frequency throughout this study. Some of them changed their frequently dramatically over the eight

235

weeks. However, based on the average frequency, it was found that generally these research participants had a slightly higher frequency of using microblog for their reflective practice in microteaching, but the frequency decreased throughout the middle and the end of this study.
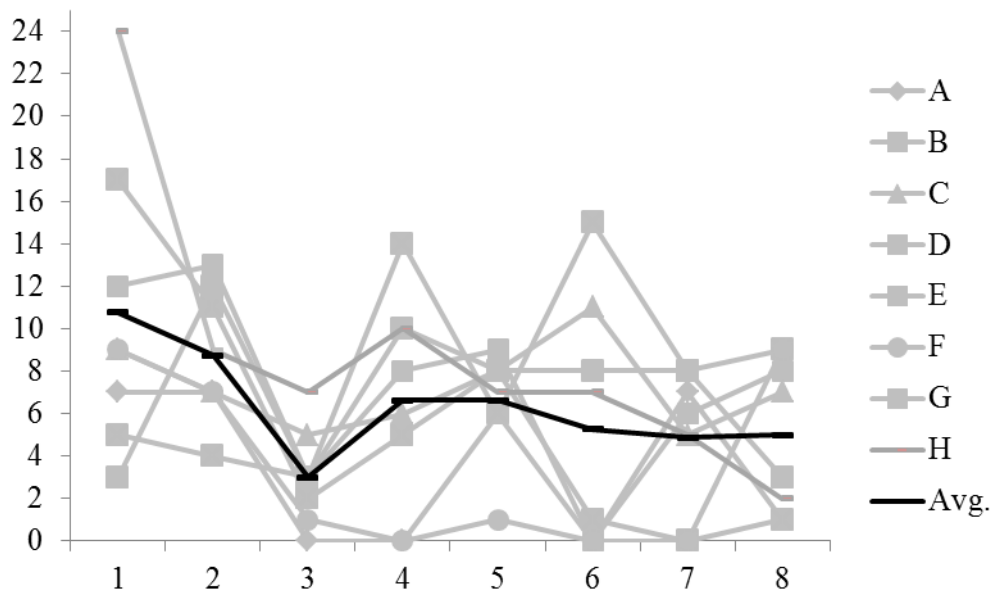

Figure 4.51. Q1.2 Cross-case Synthesis

Q1.3: Did the research participants have high quality reflective thinking when using microblog for their reflective practice in microteaching?

As illustrated by Figure 4.52, the research participants' reflective writings did not show that they had high quality reflective thinking throughout this study. These reflective writings did not show that the research participants' reflective thinking levels changed

236

significantly over the eight weeks. Furthermore, the research participants' microblog postings did not show that they had high quality reflective thinking throughout this study, either.
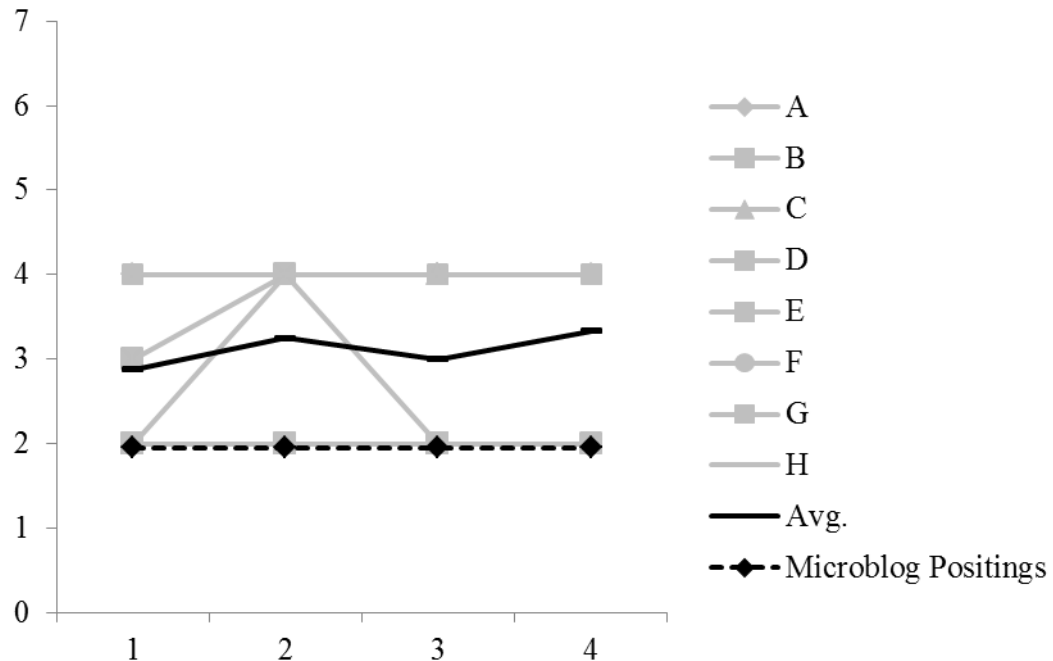

Figure 4.52. Q1.3 Cross-case Synthesis

Cross-case Synthesis Summary: Research Proposition 1

The research participants' patterns in Q1.1 to Q1.3 do not match Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 1 needs to be revised. During this study, the research participants had mixed

positive and negative attitudes towards using microblog for their reflective practice in microteaching. Generally they had more positive attitudes at the beginning of this study. Gradually their positive attitudes decreased while their negative attitudes increased throughout the middle and the end of this study. They did not have a high and stable frequency of using microblog for their reflective practice in microteaching. Their reflective writings and microblog postings did not show that they had high quality reflective thinking when using microblog for their reflective practice in microteaching, either.

Q2.1: Did the research participant use microblog to conduct reflective practice before microteaching? How often?

As indicated by Figure 4.53, the research participants rarely used microblog to conduct reflective practice before microteaching. The figure also showed that these frequencies changed significantly throughout this study.
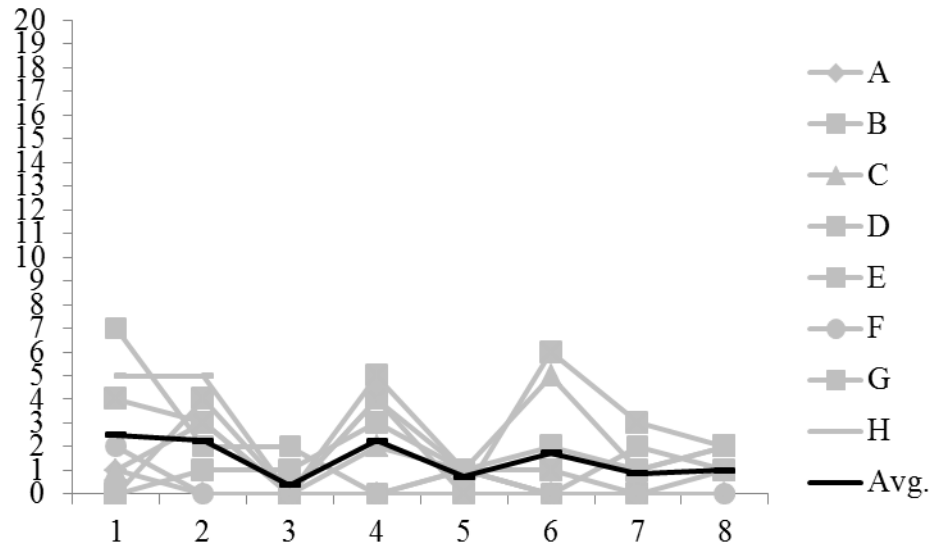
Figure 4.53. Q2.1 Cross-case Synthesis

Q2.2: Did the research participant use microblog to conduct reflective practice during microteaching? How often?

As illustrated by Figure 4.54, the research participants did not have high frequencies of using microblog to conduct reflective practice during microteaching, but the frequencies are higher than those of using microblog before microteaching. The figure also showed that these frequencies changed significantly throughout this study.
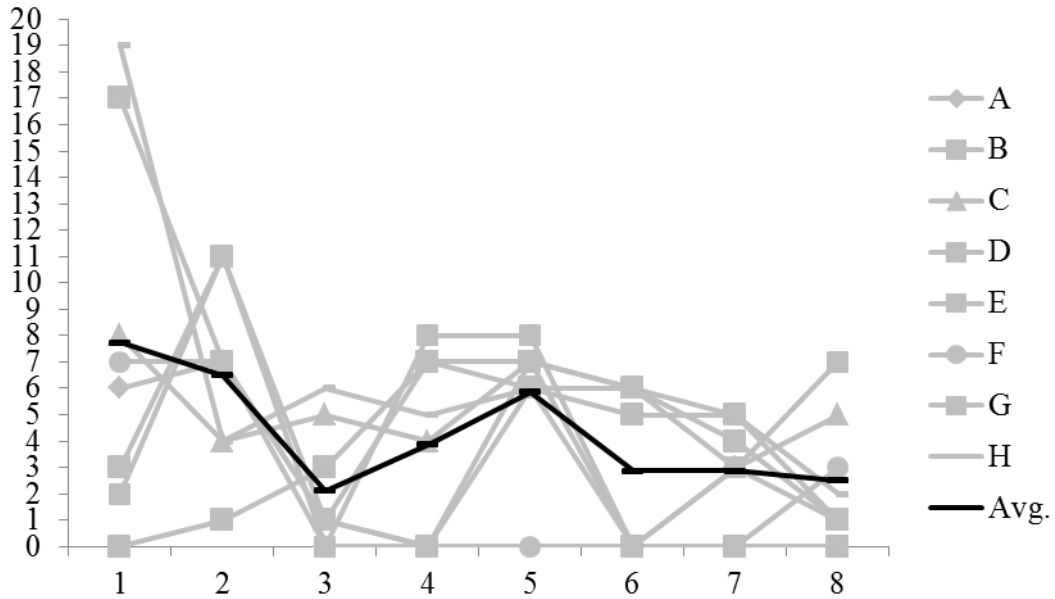
Figure 4.54. Q2.2 Cross-case Synthesis

Q2.3: Did the research participant use microblog to conduct reflective practice after microteaching? How often?

As indicated by Figure 4.55, most of the research participants rarely used microblog to conduct reflective practice before microteaching. The figure also showed that these frequencies changed significantly throughout this study.
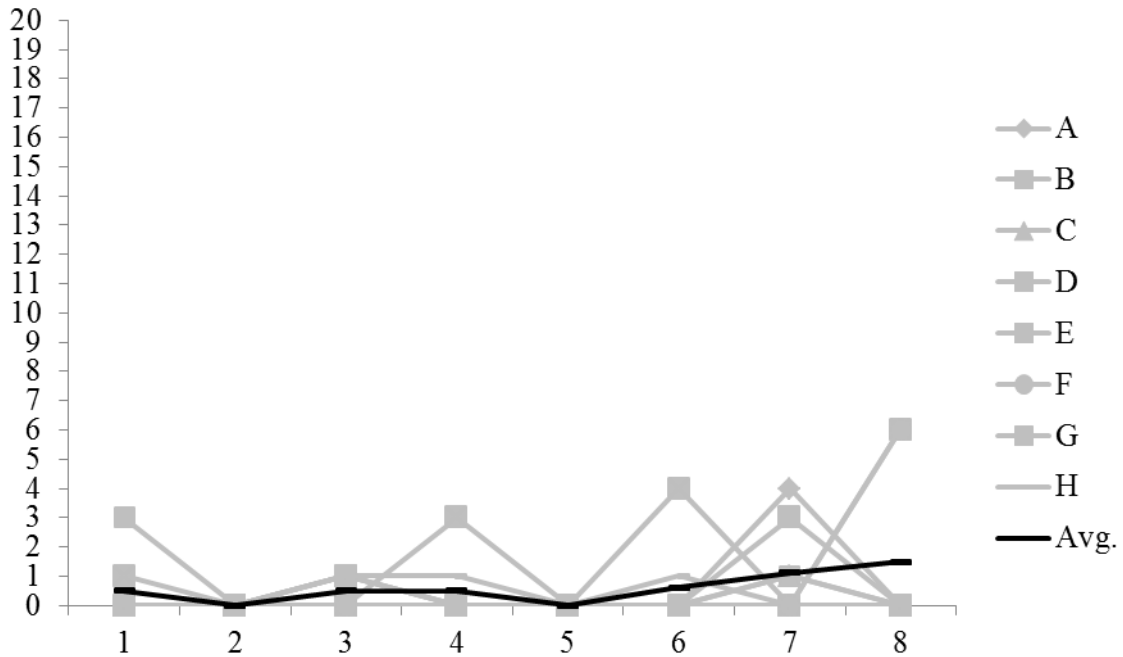
Figure 4.55. Q2.3 Cross-case Synthesis

Cross-case Synthesis Summary: Research Proposition 2

The research participants' patterns in Q2.1 to Q2.3 match Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.), and, therefore, Research Proposition 2 is confirmed. The research participants changed his typical reflective practice in microteaching in this study. As presented by Figure 4.56, the research participants did not have high frequencies of using microblog to conduct reflective practice before, during, or after microteaching. The figure also showed that these frequencies changed significantly throughout this study. However, the figure indicated that the research participants had much higher frequencies of using microblog to conduct reflective practice during microteaching. That is to say, although

reflection-for-action dominated pre-service teachers' reflective practice in traditional settings, in this study the research participants had much more reflection-in-action than reflection-for-action or reflection-in-action.
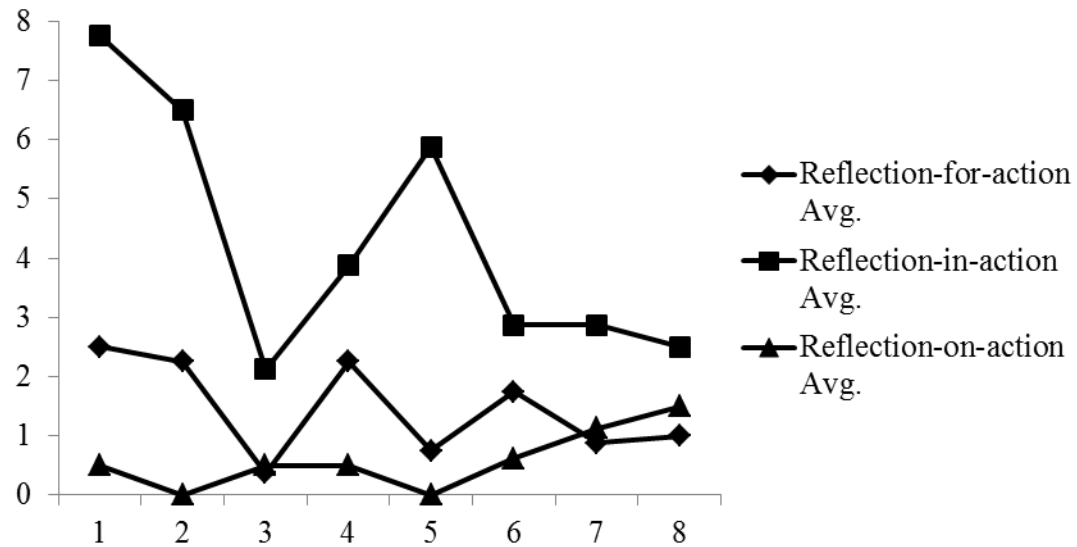

Figure 4.56. Cross-case Synthesis: Research Proposition 2

Q3.1: Did the research participants connect China's social or cultural issues with their experiences of using microblog for their reflective practice in microteaching?

The technique of cross-case synthesis is used to analyze Q3.1 patterns cross the eight cases: (a) Q3.1 patterns from all the cases are listed together. (b) These patterns are compared with one another. If one pattern is identified in two or more cases, it is recorded as a cross-case pattern. For example, "Chinese were so unreal and too worldly-

wise" is located in Case B and Case C. Therefore, it is listed as a cross-case pattern. The

results are presented by Table 4.11.

Table 4.11

Q3.1 Cross-case Synthesis

Case	China's Social or Cultural Issues
A	• Chinese culture focused on harmony and collaboration
B	• Chinese were so unreal and too worldly-wise
C	• Chinese were so unreal and too worldly-wise
D	• Chinese liked to be implicit rather than being direct
E	• Chinese liked to be implicit rather than being direct • the high economic pressure
F	• Chinese liked to be implicit rather than being direct
G	• n/a
H	• Chinese liked to be implicit rather than being direct • Chinese students' weak self-initiative
Cross-case Synthesis	• Chinese were so unreal and too worldly-wise • Chinese liked to be implicit rather than being direct

As indicated by the table above, the research participants connected China's social or cultural issues with their experiences of using microblog for their reflective practice in microteaching. The table shows that, although different research participants pointed out the different issues, there were the following two issues which have been shared by two or more research participants in this study: First, the research participants believed that Chinese were so unreal and too worldly-wise so that they could not possibly give honest comments about others' microteaching performance. Second, the research participants thought that Chinese liked to be implicit rather than being direct. Therefore, they prefer posting positive or encouraging rather than negative comments on microblog.

Q3.2: Did the research participants connect their school settings with their experiences of using microblog for their reflective practice in microteaching?

The technique of cross-case synthesis is used to analyze Q3.2 patterns cross the eight cases: (a) Q3.2 patterns from all the cases are listed together. (b) These patterns are compared with one another. If one pattern is identified in two or more cases, it is recorded as a cross-case pattern. For example, "the poor Internet connection at the university" is located in all the cases. Therefore, it is listed as a cross-case pattern. The results are presented by Table 4.12.

Table 4.12

Q3.2 Cross-case Synthesis

Case	School Settings
A	• the poor Internet connection at the university
B	• the poor Internet connection at the university • the heavy coursework • the projector location problem at the microteaching classroom
C	• the poor Internet connection at the university • the heavy coursework
D	• the poor Internet connection at the university • the heavy coursework • the projector location problem at the microteaching classroom • no video recording equipment in the microteaching classroom
E	• the poor Internet connection at the university • the heavy coursework • no video recording equipment in the microteaching classroom
F	• the poor Internet connection at the university • the heavy coursework
G	• the poor Internet connection at the university
H	• the poor Internet connection at the university • the heavy coursework • the inappropriate course plan • the projector location problem at the microteaching classroom • the limited microteaching classrooms
Cross-case Synthesis	• the poor Internet connection at the university • the heavy coursework • the projector location problem at the microteaching classroom • no video recording equipment in the microteaching classroom

As indicated by the table above, the research participants did connect their school settings with their experiences of using microblog for their reflective practice in microteaching. The table shows that, although different research participants mentioned the different issues, there were the following four issues which have been shared by two or more research participants in this study: First, the research participants complained about the poor Internet connection at the university. Second, the research participants talked about their heavy coursework. Third, the research participants mentioned the projector location problem at the microteaching classroom. Finally, the research participants pointed out that there was no video recording equipment in the microteaching classroom. The research participants believed that all these issues contributed to their negative experiences in this study.

Q3.3: Did the research participants connect their microteaching course settings with their experiences of using microblog for their reflective practice in microteaching?

The technique of cross-case synthesis is used to analyze Q3.3 patterns cross the eight cases: (a) Q3.3 patterns from all the cases are listed together. (b) These patterns are compared with one another. If one pattern is identified in two or more cases, it is recorded as a cross-case pattern. For example, "the tight class schedule" is located in Case E and Case G. Therefore, it is listed as a cross-case pattern. The results are presented by Table 4.13.

Table 4.13

Q3.3 Cross-case Synthesis

Case	School Settings
A	• the little after-class communication except microblog
B	• the poor class management
C	• the long class session • the poor class arrangement • the little after-class communication except microblog
D	• the instructor-led classroom culture • the little in-class communication except microblog
E	• the tight class schedule • the little after-class communication except microblog
F	• n/a
G	• the tight class schedule • the little after-class communication except microblog
H	• the little in-class communication except microblog
Cross-case Synthesis	• the tight class schedule • the little in-class communication except microblog • the little after-class communication except microblog

As indicated by the table above, the research participants did connect their course settings with their experiences of using microblog for their reflective practice in microteaching. The table also shows that, although different research participants talked about the different issues, there were the following four issues which have been shared by two or more research participants in this study: First, the research participants complained about the tight class schedule. Second, the research participants talked about that they had the little in-class communication except microblog. Finally, the research participants mentioned that they had the little after-class communication except microblog. The research participants believed that all these issues contributed to their negative experiences in this study.

Q3.4: Did the research participants connect their personal life experiences with their experiences of using microblog for their reflective practice in microteaching?

The technique of cross-case synthesis is used to analyze Q3.4 patterns cross the eight cases: (a) Q3.4 patterns from all the cases are listed together. (b) These patterns are compared with one another. If one pattern is identified in two or more cases, it is recorded as a cross-case pattern. For example, "preferred other communication tools" is located in Case A, Case B, Case F, and Case G. Therefore, it is listed as a cross-case pattern. The results are presented by Table 4.14.

Table 4.14

Q3.4 Cross-case Synthesis

Case	School Settings
A	• preferred other communication tools • the limited teaching skills • disliked online self-expression • could not concentrate on study when using microblog
B	• the limited microblog experience • preferred other communication tools
C	• had no interest in chasing fashions • disliked using the Internet • felt anxious about the future
D	• the influence of the popularity of microblog in China • use cell phone to access microblog • the limited teaching skills
E	• the limited microblog experience • use cell phone to access microblog • disliked discussions
F	• the busy personal schedule • preferred other communication tools
G	• preferred other communication tools • the passive personality
H	• the busy personal schedule • felt anxious about the future
Cross-case Synthesis	• preferred other communication tools • use cell phone to access microblog • the limited teaching skills • the limited microblog experience • felt anxious about the future • the busy personal schedule

As indicated by the table above, the research participants did connect their personal experiences with their experiences of using microblog for their reflective practice in microteaching. The table also shows that, although different research participants talked about the different issues, there were the following four issues which have been shared by two or more research participants in this study: First, the research participants pointed out that they still preferred other communication tools. Second, the research participants used cell phone to access microblog. Third, the research participants mentioned their limited teaching skills. Fourth, the research participants discussed their limited microblog experiences. Fifth, the research participants felt anxious about their future. Finally, the research participants associated with their busy personal schedules.

Cross-case Synthesis Summary: Research Proposition 3

The research participants' patterns in Q3.1 to Q3.4 match Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.), and, therefore, Research Proposition 3 is confirmed. The research participants experienced the unique sociocultural influences when using microblog in their reflective practice in microteaching. Regarding China's social-cultural issues, the research participants believed that Chinese were so unreal and too worldly-wise and liked to be implicit rather than being direct. Regarding the school settings, the research participants complained about the poor Internet connection at the university, the heavy coursework in their programs, and the inappropriate projector location in the microteaching classroom with video recording equipment. Regarding the course settings, the research participants pointed out the tight class schedule, and the little in-class and after-class communication

except microblog. Regarding the personal life experiences, the research participants preferred using other communication tools. They liked to use cell phone to access microblog. They worried about their limited teaching skills and limited microblog experiences. They felt anxious about their future. They also mentioned their busy personal schedules.

Cross-case Synthesis Summary: Logic Chain

After all the cross-case patterns are collected through the technique of cross-case synthesis, another technique, the technique of logic model is used to build the logic chain based on these cross-case patterns. In order to do so, there are the following two steps. First, all the cross-case pattern are listed at Table 4.15. Second, the cause-effect links among these cross-case patterns are established, which are presented at Table 4.16. In the table, the "↑" symbol is used to present each cause-effect link. For example, there is a cause-effect links ("↑") between "rarely used microblog to conduct reflective practice before microteaching" and "few microblog postings". It is explained as that, since the research participants "rarely used microblog to conduct reflective practice before microteaching" (the cause), they had "few microblog postings" (the effect).

Table 4.15

Cross-case Synthesis Summary

Research Proposition	Cross-case Patterns	
1	Beginning	• using microblog was a new idea • using microblog was a good idea
	Middle	• few weakness comments • inconvenient to use microblog for microteaching for microteaching
	End	• like other tools more • few microblog postings • few weakness comments • less passionate • more frustrated
	• did not have a high and stable frequency of using microblog • did not show high quality reflective thinking	
2	• rarely used microblog to conduct reflective practice before microteaching • used microblog more often to conduct reflective practice before microteaching • rarely used microblog to conduct reflective practice after microteaching	
3	• Chinese were so unreal and too worldly-wise • Chinese liked to be implicit rather than being direct • the poor Internet connection at the university • the heavy coursework • the projector location problem at the microteaching classroom • no video recording equipment in the microteaching classroom • the tight class schedule • the little in-class communication except microblog • the little after-class communication except microblog • preferred other communication tools • use cell phone to access microblog • the limited teaching skills • the limited microblog experience • felt anxious about the future • the busy personal schedule	

Table 4.16

Logic Chain

Research Proposition	Cross-case Patterns
1	**Beginning** • using microblog was a new idea • using microblog was a good idea **Middle** • few weakness comments • inconvenient to use microblog for microteaching for microteaching **End** • like other tools more • few microblog postings • few weakness comments • less passionate • more frustrated • did not have a high and stable frequency of using microblog • did not show high quality reflective thinking
2	• rarely used microblog to conduct reflective practice before microteaching • used microblog more often to conduct reflective practice before microteaching • rarely used microblog to conduct reflective practice after microteaching
3	• Chinese were so unreal and too worldly-wise • Chinese liked to be implicit rather than being direct • the poor Internet connection at the university • the heavy coursework • the projector location problem at the microteaching classroom • no video recording equipment in the microteaching classroom • the tight class schedule • the little in-class communication except microblog • the little after-class communication except microblog • preferred other communication tools • use cell phone to access microblog • the limited teaching skills • the limited microblog experience • felt anxious about the future • the busy personal schedule

Table 4.16 illustrates that there are many cause-effect links among these cross-case patterns. The logic chain built based on these cause-effect links describes the following story: At the beginning of this study, the research participants are excited about using microblog for their reflective practice in microteaching. They believed that it was a new idea and a good idea. They liked the quick and convenient features which microblog brought into their microteaching course. Considering the tight class schedule and the little in-class and after-class communication, they believed that microblog provided an additional communication platform to let their voices heard. However, their experiences changed during the following weeks. They believed that Chinese were worldly-wise and preferred implicit negative comments, so it was not a surprise for them to find out that there were very few microblog posting regarding their weaknesses, which they actually really wanted. They had their busy personal schedules. They had the heavy coursework in their programs. Both made them feel using microblog before and after microteaching as an extra burden. The poor Internet connection at the school and the existing classroom settings did not make their microblog experiences during microteaching better, either. Furthermore, they believed that they had limited teaching skills and microblog experiences. They believed that they were still more familiar with other communication tools, such as QQ. They still tended to hesitate to use microblog in their microteaching. Therefore, at the end of this study, there were not many microblog postings. Their reflective writings or microblog postings did not show their high-quality reflective thinking, either. They felt less passionate and more frustrated about using microblog in their reflective practice in microteaching.

Summary

At the beginning of this chapter, the study context is introduced. Then the technique of time-series analysis and the technique of pattern matching are used to examine each of the eight cases of this study. Finally, the technique of cross-case synthesis and the technique of logic model are applied to develop a logic chain from the cross-case patterns. The findings of this study reveal the following conclusions:

- The research participants had the mixed positive and negative experiences towards using microblog for their reflective practice in microteaching. Therefore, Research Proposition 1 (Chinese K-12 pre-service teachers have positive experiences of using microblog in their reflective practice in microteaching.) needs to be revised.

- The research participants changed their typical reflective practice in microteaching in this study. Therefore, Research Proposition 2 (Chinese K-12 pre-service teachers change their typical reflective practice in microteaching.) is confirmed.

- The research participants experienced the unique sociocultural influences when using microblog in their reflective practice in microteaching. Therefore, Research Proposition 3 (Chinese K-12 pre-service teachers experience unique social-cultural influences when using microblog in their reflective practice in microteaching.) is confirmed.

CHAPTER FIVE

DISCUSSIONS

Chapter Four presents the research findings of this study. This chapter develops the discussions based on these research findings. The details are presented in the sections of this chapter. The first section focuses on the implications which are learned from these research findings. The second section discusses the limitations of this study. The fourth section provides the recommendations for the future studies in this research topic. The last section summarizes the results of the above discussions.

Implications

Based on the research findings of this study, the following implications can be reached. First of all, this study suggests that it is possible to change pre-service teachers' typical reflective practice in microteaching with the support of the affordances of appropriate technologies. As discussed in Chapter Two, although there are generally the three types of reflective practice in microteaching: reflection-in-action, reflection-on-action, and reflection-for-action, reflection-in-action has been given much less attention compared with reflection-on-action and reflection-for-action in pre-service teachers' typical microteaching (Hernández-Ramos, 2004; MaKinster et al., 2006, p. 546). For example, MaKinster et al. (2006) said, "[It was] very difficult to capture reflection-in-practice by any teacher, especially by using a written retrospective analysis as the basis for reflection" (p. 546). However, as indicated in Chapter Four, although reflection-for-action dominated typical pre-service teachers' reflective practice in traditional settings, in this study the research participants had much more reflection-in-action than reflection-for-action or reflection-in-action. Because of the unique affordances of microblog, such

as allowing users to publish and share brief messages for real-time or asynchronous communication with no more than 140 characters (Gao et al., 2012), the research participants had the opportunity to conduct their reflective-in-practice during microteaching, which eventually shaped their traditional reflective practice in microteaching. These research findings suggest that, when supporting pre-service teachers to use microblog for their reflective practice in microteaching, we should re-think traditional microteaching environment, from class arrangement to evaluation rubric, because the existing settings may not be able to support pre-service teachers' such a behavior change any more.

.   Second, this study suggests that it is important to keep it in mind that traditional perspectives of media in learning may oversimplify the complexity of how pre-service teachers use technologies for their reflective practice in microteaching. Under these traditional perspectives, media in learning is simplified as the relationship between media and pedagogy. For example, in the Great Media Debate, on the one hand, Clark (1983) argued that media do not have impact on learning, as he said, "media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition" (p. 445). Therefore, he claimed, "Whenever you have found a medium or set of media attributes which you believe will cause learning for some learners on a given task, ask yourself if another (similar) set of attributes would lead to the same learning result", and "if you suspect that there may be an alternative set or mix of media that would give similar results, ask yourself what is causing these similar results" (Clark 1994). On the other hand, Kozma (1994) argued that media "possess particular characteristics that make them both more

and less suitable for the accomplishment of certain kinds of learning tasks", so he reached the conclusion, "If we move from 'Do media influence learning?' to 'In what ways can we use the capabilities of media to influence learning for particular students, tasks, and situations?' we will both advance the development of our field and contribute to the improvement of teaching and learning." However, the findings from this study indicated that in reality neither media nor pedagogy can dominate learning experiences. There are many other factors in this phenomenon besides media and pedagogy, which interact with one another and develop each learner's unique experience. For example, in this study, the affordances of microblog, such as postings with no more than 140 characters, have indicated how microblog was expected to be used in general settings. The instructor in this microteaching course also applied a specific pedagogy. However, during this study, how the research participants used these affordances usually involved many more factors, such as software familiarities, personal preferences, learning environment settings, and even much broader social-cultural issues, such as the tough job market and the high inflation rate. As a simple example, although the research participants only used microblog in this study, they consistently compared microblog with other technologies, such as QQ, which indirectly shaped how they viewed and used microblog in this study. These research findings suggest that, when supporting pre-service teachers to use microblog for their reflective practice in microteaching, we should jump out of the traditional "media vs. pedagogy" debate cycle and pay more attention to the complexity of using technologies in learning under broader contexts and how it has impact on each individual pre-service teacher's unique experience.

Finally, this study suggests that it is important to track pre-service teachers' experiences of using microblog for their reflective practice in microteaching over the time. This study followed the research participants through the eight weeks. The research findings showed that these research participants' experiences did not keep the same from the beginning to the end of this study. At the beginning of this study, the research participants were more excited about microblog, as a new tool in their traditional microteaching course. They believed that using microblog was a new idea and a good idea. At the same time, they also had the little understanding of how to use microblog for their reflective practice in microteaching. During the middle of this study, the research participants seemed to feel more comfortable of using microblog for their reflective practice in microteaching, but they also found out more negative issues of using it. At the end of this study, the research participants' excitement about microblog disappeared. They felt much more discouraged and frustrated since they experienced the significant impact of increasing negative issues while they did not get the results and the support which they wanted. These research findings suggest that, when supporting pre-service teachers to use microblog for their reflective practice in microteaching, we should understand that pre-service teachers have different attention focuses at different stages and that we may need to provide different support to them accordingly.

Limitations

As the initial empirical study of how to use technologies to integrate pre-service teachers' three types of reflective practices in microteaching, certainly it has some limitations for providing a comprehensive and deep understanding of this research topic. First of all, this study is conducted in a specific context, the eight pre-service teachers at a

large university in a southwestern province in China. In Chapter Two, the literature review indicates that the research participants' social-cultural backgrounds had significant impact on the research findings in the previous studies. In Chapter Four, the conclusions of this study also suggest that the research participants' social-cultural backgrounds played an important role in shaping their experiences of using microblog in their reflective practice in microteaching. Therefore, it is reasonable to predict that the pre-service teachers in other specific contexts, such as the pre-service teachers in a university in the Midwestern United States, may have different experiences, which are unable to be revealed by this study.

Second, this study investigates the research participants from very similar backgrounds. All the research participants in this study were in the graduate programs at the same university, either the M.Ed. program in Curriculum & Instruction with the focus on Physics Education or the M.S. program in Subject Education with the focus on Physics Education. They took the same microteaching course with the same instructor in one microteaching classroom. All of them came from the poorly developed provinces in China. Their age difference was slim, from 22 to 26. Most of them were female. Most of them had the previous microteaching experiences. Most of them had the previous teaching experiences in high school. Most of them had the little previous microblog experiences. As illustrated in Chapter Four, a research participant's experience of using micro microblog in their reflective practice in microteaching was significantly impacted by how other research participants behaved in this study. For example, a research participant felt discouraged when others had few microblog postings and most of them were used to simply cheer people up. It suggests that, if the research participants with

different backgrounds, their interactions may bring different experiences, which, however, cannot be answered by this study.

Third, this study does not examine all the stakeholders. As indicated by the title of this study, this study only focuses on the pre-service teachers' experiences of using microblog in their reflective practice in microteaching from their own perspectives. However, as revealed by the findings of this study, other stakeholders in this complex phenomenon also had the significant influences on these pre-service teachers' experiences. For example, this study does not exam the instructor of the microteaching course, but, in Chapter Four, the conclusions of this study demonstrate that how the instructor arranged and led the microteaching course has become an important part of the research participants' experiences, which has little disclosure in this study, especially from the instructor's perspective.

Finally, this study only provides the data collected in a short period of time. The microteaching course in this study had nine weekly class sessions, including the first class session for the introduction and the class arrangement, and the other eight class sessions for the pre-service teachers' microteaching practice. As illustrated by Chapter Four, the technique of time-series analysis is used in this study to explore if the research participants' experiences changed during the eight weeks. The results showed that the research participants' experiences did change over the time. However, because of the restriction of the course length, this study is unfortunately unable to explore how the research participants' experiences evolve in the long run.

Recommendations for Future Studies

There are several recommendations for the future studies in this research topic. First of all, it is meaningful to conduct studies in other specific contexts. Comparing the findings in these specific contexts can provide more useful guidance to develop appropriate eLearning systems or microteaching courses to match the pre-service teachers' different needs and preferences in different circumstances. They can also help us have a more comprehensive and deeper understanding of how the factors in this complex phenomenon interact.

Second, it is interesting to conduct studies with research participants from diverse backgrounds. These studies can enrich our understanding of how pre-service teachers with different backgrounds use microblog in their reflective practice in microteaching. But, more importantly, they illustrate how the background diversity plays its role in shaping pre-service teachers' experiences.

Third, it is valuable to conduct studies to intervene pre-service teachers' experiences. This study only focuses on pre-service teachers' experiences with minimized intervention. In the future studies, it is possible to apply the combination with different technologies, such as microblog and QQ. It is also beneficial to try different microteaching models in class or after class to explore if there are suitable microteaching strategies or models in technology-enriched environments.

Fourth, it is also important to conduct studies to explore pre-service teachers' long-term experiences of using microblog in their reflective practice in microteaching. Additionally, large-scale research designs may be needed so that the research results can possibly explained from statistical perspective.

Last but not least, it is necessary to conduct studies to exam other stakeholders in this complex phenomenon, such as the instructors in microteaching courses. These studies can not only reveal other stakeholders' perspectives of how pre-service teachers use microblog in their reflective practice in microteaching, but also give a more transparent picture of how these stakeholder interact with one another.

Summary

The first section of chapter explores the implications based on the research findings of this study. These research findings suggest that we should re-think traditional microteaching environment, from class arrangement to evaluation rubric, because the existing settings may not be able to support pre-service teachers' such a behavior change any more. They suggest that we should jump out of the traditional "media vs. pedagogy" debate cycle and pay more attention to the complexity of using technologies in learning under broader contexts and how it has impact on each individual pre-service teacher's unique experience. They also suggest that we should understand that pre-service teachers have different attention focuses at different stages and that we may need to provide different support to them accordingly. The second section of chapter discusses the limitations of this study. This study is conducted in a specific context. It only investigates the research participants from very similar backgrounds. It does not exam all the stakeholders. It only provides the data collected in a short period of time. The final section provides the recommendations for the future studies in this research topic, such as studying other specific contexts, investigating such experiences from pre-service teachers with diverse backgrounds, intervening pre-service teachers' experiences, exploring pre-

service teachers' long-term experiences, and examing other stakeholders in this complex

phenomenon.

REFERENCES

Alexa (2012). Statistics summary for Twitter.com. Retrieved from

    http://www.alexa.com/siteinfo/twitter.com

Al-Khalifa, H. S. (2008). Twitter in academia: a case study from Saudi Arabia. *eLearn*

    Magazine, Retrieved from http://elearnmag.acm.org/archive.cfm?aid=1454109

Allen, D. W. (1966). *Microteaching: A Description*. Stanford, CA: Stanford University.

Allen, D. W., & Ryan, K. A. (1969). *Microteaching*. MA: Addison-Wesley.

Amobi, F. A. (2005). Pre-service teachers' reflectivity on the sequence and consequences

    of teaching actions in a microteaching experience. *Teacher Education Quarterly,*

    Winter, 115-130.

Amobi, F. A., & Irwin, L. (2009). Implementing on-campus microteaching to elicit

    preservice teachers' reflection on teaching actions: Fresh perspective on an

    established practice. *Journal of the Scholarship of Teaching and Learning, 9*(1),

    27-34.

Baek, E., & Barab, S. A. (2005). A study of dynamic design dualities in a web-supported

    community of practice for teachers. *Journal of Educational Technology &*

Society,

    8(4), 161-177..

Baek. E., & Schwen, T. M. (2006). How to build a better online community - Cultural

    perspectives. *Performance Improvement Quarterly, 19*(2), 51-68.

Barab, S. A., MaKinster, J. G., & Scheckler, R. (2004). Designing system dualities: Characterizing a web-supported teacher professional development community. In S. A. Barab, R. Kling, & J. Gray (Eds.), *Designing for virtual communities in the service of learning* (pp.53-90). New York, NY: Cambridge University Press.

Bauer, J. F. (2002). Assessing student work from chatrooms and bulletin boards. *New Directions for Teaching and Learning, 2002*(91), 31-36.

Becker, H. S. (1967). Whose side are we on? *Social Problems, 14*, 239-247.

Bean, T. W., & Stevens, L. P. (2002). Scaffolding reflection for pre-service and inservice teachers. *Reflective Practice, 3*(2), 205-218.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher, 18*(1), 32-42.

Buckley, C. (2011, September 19). China's Sina to step-up censorship of Weibo. *Reuters News*. Retrieved from http://in.reuters.com/article/2011/09/19/idINIndia-9420220110919

Bush. R. N. (1968). *Microteaching: A description.* Stanford University, Mimeograph.

Cetintas. S., Si, L., Aagard, H., Bowen, K., & Cordova-Sanchez, M. (2011). Microblogging in a Classroom: Classifying Students' Relevant and Irrelevant Questions in a Microblogging-Supported Classroom. *IEEE Transactions on Learning Technologies, 4*(4), 292-300.

Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research*, 53(4), 445-59.

Click, A., & Petit, J. (2010). Social networking and Web 2.0 in information literacy. *International Information & Library Review, 42*(2), 137-142.

Conway, P. F. (2001). Anticipatory reflection while learning to teach: From a temporally truncated to a temporally distributed model of reflection in teacher education. *Teaching and Teacher Education, 17*(1), 89-106.

Cosmos Corporation. (1983). *Case studies and organizational innovation: Strengthening the connection*. Bethesda, MD: Author.

Cruickshank, D. R. (1985). Uses and benefits of reflective teaching, *Phi Delta Kappan. 66,* 704-706.

Cruickshank, D. R., Bainier, D., Cruz, J. Jr. Giebelhaus, C., McCullough, J. D., Metcalf, K. M., & Reynolds, R. (1996). *Preparing America's teachers.* Bloomington, IN: Phi Delta Kappa.

Cruickshank, D. R., & Metcalf, K. M. (1993). Improving pre-service teacher assessment through on-campus laboratory experiences. *Theory Into Practice, 32,* 86-92.

Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process.* Boston: Heath and company.

Dewey, J. (1938). *Experience and education*. New York, NY: Macmillan.

Dugan, L. (2012). Twitter to surpass 500 million registered users on Wednesday. Retrieved from http://www.mediabistro.com/alltwitter/500-million-registered-users_b18842

Dunlap, J. C. & Lowenthal, P. R. (2009). Tweeting the night away: using Twitter to enhance social presence. *Journal of Information Systems Education, 20*(2), 129-155.

Ebner, M., Lienhardt, C., Rohs, M., & Meyer, I. (2010). Microblogs in Higher Education – A chance to facilitate informal and process-oriented learning? *Computers & Education, 55*(1), 92-100.

Ebner, M., & Schiefner, M. (2008). Microblogging - more than fun? Procceding of IADIS Mobile Learning Conference. Algarve, Portugal, 155-159.

Edmodo (2009). Retrieved from http://www.edmodo.com

Epstein, G. (2011, March 14). Sina Weibo. *Forbes Asia*. Retrieved from http://www.forbes.com/global//2011/0314/features-charles-chao-twitter-fanfouchina-sina-weibo.html

Ferdig, R. E., & Roehler, L. R. (2003-2004). Student uptake in electronic discussions: Examining online discourse in literacy pre-service classrooms. *Journal of Research on Technology in Education, 36*(2), 119-136.

Gao, F., Luo, T., & Zhang, K. (2012). Tweeting for learning: A critical analysis of

research on microblogging in education published in 2008–2011. *British Journal*

of Educational Technology, 43(5), 783-801.

Germann, P., Young-Soo, K., & Patton, M. D. (2001). Heightening reflection through

dialogue: A case for electronic journaling and electronic concept mapping in

science classes. *Contemporary Issues in Technology and Teacher Education, 1*(3),

321-333.

Hansen, D. L. (2011). Exploring social media relationships. *On the Horizon, 19*(1), 43-

51.

Hao, Y. (2011). The media after the era of blog - The application of "microblogging" in

the teaching of TV university. *Journal of Shanxi Radio & TV University, 6*, 46-48.

Hazlewood, W. R., Makice, K., & Ryan, W. (2009). Twitterspace: A Co-developed

Display using Twitter to Enhance Community Awareness. *Professional*

Developers Conference 2008, 230-234.

He, C., & Yan, C. (2011): Exploring authenticity of microteaching in pre-service teacher

education programmes, *Teaching Education, 22*(3), 291-302.

Hernández-Ramos, P. (2004). Web logs and online discussions as tools to promote

reflective practice. *Journal of Interactive Online Learning, 3*(1).

Honeycutt, C., & Herring, S. C. (2009). Beyond microblogging: Conversation and

collaboration via Twitter. *Proceedings of the 42nd Hawaii International*

Conference on System Sciences. Hawaii, HI, 1-10.

Huang, Y., Wang, X., Jiao, J., & Fu, D. (2011). Survey and think on students' attitude on

microblogging application in learning. *Journal of Distance Education, 5*, 64-69.

Java, A., Song, X., Finin, T. & Tseng, B. (2007). Why we twitter: understanding

microblogging usage and communities?. *Proceedings of the 9th WebKDD and 1st*

SNA-KDD 2007 workshop on Web mining and social network analysis, 56-65.

Johnson, K. A. (2011). The effect of "Twitter" posts on students' perceptions of

instructor credibility. *Learning, Media and Technology, 36*(1), 21-38.

Julia, G., & Guy, M. (2013). Contact Calls: Twitter as a Dialogic Social and Linguistic

Practice. *Language Sciences, 35*(1), 47-58.

Hilburn, M. (2013, March 13). Weibo censors move with great speed. *VOA News Asia*.

Retrieved from http://www.voanews.com/content/weibo-censors-move-with-

great-spead/1620992.html

Kassens-Noor, E. (2012) Twitter as a teaching practice to enhance active and informal

learning in higher education: *The case of sustainable tweets. Active Learning in*

Higher Education, 13(1), 9-12.

Kendall, L. (1999). Recontextualizing cyberspace: Methodological considerations for

online research. In S. Johns (Ed.), *Doing Internet research* (pp. 57-75). Thousand

Oaks, CA: Sage.

Killion, J. P., & Todnem, G. R. (1991). A process for personal theory building.

Educational Leadership, 48(6), 14-16.

King, F. B., & LaRocco, D. J. (2006). E-journaling: A strategy to support student

reflection and understanding. *Current Issues in Education, 9*(4).

Kirschner, P., Strijbos, J., Kreijns, K., & Beers, P. J. (2004). Designing electronic

Collaborative learning environments. *Educational Technology Research and*

Development, 52(3), 47-66.

Klastrup, L. (2008). Ambient awareness, lifestreams and personal storytelling. Will it

change my relation to You?. Retrieved from http://www.klastrup.dk/?p=1484

Kozma, R. B. (1994). The influence of media on learning: The debate continues. *School*

Library Media Research, 22(4). Retrieved from

http://www.ala.org/aasl/aaslpubsandjournals/slmrb/editorschoiceb/infopower/selct

kozmahtml

Kroski, E. (2008). All a Twitter. *School Library Journal. 54*(7), 31-35.

Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*.

Thousand Oaks, CA: Sage Publications.

Kwak, H., Lee, C., Park, H., & Moon, S. (2010). What is Twitter, a social network or a

news media?. *Proceedings of the 19th International Conference on World Wide

Web*, New York, NY, 591-600.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*.

New York: Cambridge University Press.

LeCompte, M. D., & Preissle, J. (1993). Ethnography and qualitative design in

educational research. San Diego, CA: Academic Press.

Levin, B. B., He, Y., & Robbins, H. H. (2006). Comparative analysis of pre-service

teachers' reflective thinking in synchronous versus asynchronous online case

discussions. *Journal of Technology and Teacher Education, 14*(3), 439-460.

Lomicka, L., & Lord, G. (2012). A tale of tweets: Analyzing microblogging among

language learners. *System, 40*(1), 48-63.

Luo, T., & Gao, F. (2012). Enhancing classroom learning experience by providing

structures to microblogging-Based activities. *Journal of Information Technology

Education, 11*, 199-211.

MaKinster, J. G., Barab, S., Harwood, W., & Andersen, H. (2006). The effect of social

Context on the reflective practice of pre-service science teachers: Incorporating a

Web-supported community of teachers. *Journal of Technology and Teacher

Education, 14*(3), 543-579.

Massey, D. (2005). *For space*. London: Sage Publications.

McDuffie, A. R., & Slavit, D. (2002). Utilizing online discussion to support reflection

and challenge beliefs in elementary mathematics methods classrooms.

Contemporary Issues in Technology and Teacher Education, 2(4), 447-465.

McFedries, P. (2007). All A-Twitter. *IEEE Spectrum, October*, 84.

McLellan, H. (1998). The Internet as a virtual learning community. *Journal of Computing

in Higher Education, 9*(2), 92-112.

Merriam, S. B. (1988). *Case study research in education: A qualitative approach.* San

Francisco, CA: Jossey-Bass.

Merriam, S. B. (1998). *Qualitative research and case study applications in education*.

San Francisco, CA: Jossey-Bass.

Metcalf, K. K. (1993). Critical factors in on-campus clinical experience. *Teaching

Education, 5,* 164-174.

Metcalf, K. K., Ronen H. A., & Kahlich, P. A. (1996). Alternatives to field-based

experiences: The comparative effects of on-campus laboratories. *Teaching and

Teacher Education, 3,* 271-283.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded

sourcebook*. Thousand Oaks, CA: Sage.

Mills, R. F. (1991). Micro-peer teaching: Organization and benefits. *Education, 111,* 559-

562.

Mischaud, E. (2007). *Twitter: Expressions of the whole self - An investigation into user appropriation of a web-based communications platform*. Media@lse, London School of Economics and Political Science.

National Council of Accreditation of Teacher Education. (2006). *Professional standards for the accreditation of schools, colleges, and departments of education*.

Wines, M., & Lafraniere, S. (2011, July 28). In baring facts of train crash, blogs erode China censorship. *The New York Times*. Retrieved from www.nytimes.com/2011/07/29/world/asia/29china.html?pagewanted=all

Nicholson, S. A., & Bond, N. (2003). Collaborative reflection and professional community building: An analysis of pre-service teachers' use of an electronic discussion board. *Journal of Technology and Teacher Education, 11*(2), 259-279.

Ohlund, B., Yu, C. H., Jannasch-Pennell, A., & DiGangi, S. A. (2000). Impact of Asynchronous and synchronous Internet-based communication on collaboration and performance among K-12 teachers. *Journal of Educational Computing Research, 23*(4), 405-420.

Onlinecollege.net (2009). 101 ways to use Twitter on campus. Retrieved from http://www.onlinecolleges.net/2009/09/14/101-ways-to-use-twitter-on-campus/

Oravec, J. A. (2003). Weblogs as an emerging genre in higher education. *Journal of Computing in Higher Education, 14*(2), 21-44.

Paz, K. (2009). The year of social networking. *Technology Teacher, 69*(1), 6.

Peng Z. (2008). Why did Twitter fail in China. *The Internet Weekly*. Retrieved from http://it.hexun.com/2008-02-27/104078050.html

Peterson, K. A., & Bickman, L. (1992). Using program theory in quality assessments of children's mental health services. In H. T. Chen & P. Rossi (Eds.), *Using theory to improve program and policy evaluations* (pp. 165-176), New York, NY: Greenwood.

Polkinghorne, D. E. (1989). Phenomenological research methods. In R. S. Valle & S. Halling (Eds.), *Existential-phenomenological perspectives in psychology: Exploring the breadth of human experience*. New York: Plenum Press, 41-60.

Ramos, P. T. (2004). Web logs and online discussions as tools to promote reflective practice. *Journal of Interactive Online Learning, 3*(1).

Rethlefsen, M. L. (2009). Power Tweeting: Next steps. *Library Journal, 134*(17), 18-20.

Resonance China (2010). Sina commands 56% of China's microblog market. Retrieved from http://www.resonancechina.com/2011/03/30/sina-commands-56-of-chinas-microblog-market/

Reuben, R. (2009a). *The use of social media in higher education for marketing and communications: A guide for professionals in higher education*. Retrieved from http://www.ciff.net/seminarioformanciononline/DocumentoSeminarioII.pdf

Reuben, R. (2009b). *Is your university using Twitter to its fullest potential?*. Retrieved from http://http://doteduguru.com/id2251-twitter-potential-universities.html

Rog, D. J., & Huebner, R. B. (1992). Using research and theory in developing innovative programs for homeless individuals. In H. T. Chen & P. Rossi (Eds.), *Using theory to improve program and policy evaluations* (pp. 165-176), New York, NY: Greenwood.

Schön, D. (1983). *The reflective practitioner: How professional think in action*. New York: Basic Books.

Schön, D. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in professions*. San Francisco: Jossey-Bass.

Schwen, T. M., & Hara, N. (2004). Community of Practice: A metaphor for online design. In S. A. Barab, R. Kling, & J. Gray (Eds.), *Designing for virtual communities in the service of learning* (pp. 154-178). New York: Cambridge University Press.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-22.

Sparks-Langer, G. M., Simmons, J. M., Pasch, M., Colton, A., & Starko, A. (1991). Reflective pedagogical thinking: How can we promote it and measure it? *Journal of Teacher Education*, *45*, 310–318.

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.

Starr, J. (2010). California digital library in Twitter-land. *Computers in Libraries, 30*(7), 23-27.

Stevens, V. (2008). Trial by Twitter: The rise and slide of the year's most viral microblogging platform. *Teaching English as a Second or Foreign Language*, *12(*1). Retrieved from http://www.tesl-ej.org/ej45/int.html

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and technique*. Newbury Park, CA: Sage.

Tagtmeier, C. (2010). Facebook vs. Twitter: Battle of the social network stars. *Computers In Libraries, 30*(7), 6-10.

Tang, Z. (2011). Microblogging Teaching in Higher Vocational Ideological and Political Effects of the Practice and Thinking. *The Science Education Article Collects, 15*, 24-26.

Thames, G. (2009). Twitter as an educational tool. *Journal of Child and Adolescent Psychiatric Nursing, 22*(4), 235-235.

Tharp, R. G., & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and Schooling in social context*. Cambridge, England: Cambridge University Press.

Thompson, L. (2008). Brave New World of Digital Intimacy. *New York Times*.

Thoms, B. (2012). Student perceptions of microblogging: Integrating Twitter with blogging to support learning and interaction. *Journal of Information Technology Education, 11*, 179-197.

Tong, Y., & Lei, S. (2013). War of position and microblogging in China. *Journal of Contemporary China, 22*(80), 292-311.

Twitterlearn (2009). Retrieved from http://www.twitterlearn.com

Vare, J. W. (1994). Partnership contrasts: microteaching activity as two apprenticeships in thinking. *Journal of Teacher Education, 45,* 209-217.

Vygotsky, L. (1986). *Thought and language*. Cambridge, MA: The MIT Press.

Nan, T., & Zhang, T. (2011, December 1). User identity verification on Sina Weibo caught public attention. *Sina News*. Retrieved from http://news.sina.com.cn/m/news/roll/2011-12-01/174023559036.shtml

Watson, J. E. (2011). The passions & problems of a political pundit. *Issues in Higher Education, 28*(1), 14-15.

Wei, S. (2012). Research on Innovative Method of Interactive Learning Based on Microblogging. *Value Engineering, 31*(29), 187-188.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. New York,

NY: Cambridge University Press.

Wepner, S. B. (1997). "You can never run out of stamps": Electronic communication in

field experiences. *Journal of Educational Computing Research, 16*(3), 251-268.

Whipp, J. L. (2003). Scaffolding critical reflection in online discussions: Helping

prospective teachers think deeply about field experiences in urban schools.

Journal of Teacher Education, 54(4), 321-333.

Williams, J. B. (2004). Exploring the use of blogs as learning spaces in the higher

education sector. *Australian Journal of Educational Technology, 20*(2), 232-247.

Wright, N. (2010). Twittering in teacher education: Reflecting on practicum experiences.

Open Learning, 25(3), 259-265.

Xie, Y., & Sharma, P. (2004, October). *Students' lived experience of using weblogs in a

class: An exploratory study.* Paper presented at the Association for Educational

Communications and Technology, Chicago, IL.

Qiang, H. (2013). China's Internet users reach 564 mln. *Xin Hua News*. Retrieved from

http://news.xinhuanet.com/english/sci/2013-01/15/c_132104473.htm

Yamamoto, J. & Hicks, J. (2007). Microteaching with digital movie and online

    discussion forum for pre-service teacher training. In C. Montgomerie & J. Seale

    (Eds.), *Proceedings of World Conference on Educational Multimedia,*

    Hypermedia and Telecommunications 2007 (pp. 3092-3095). Chesapeake, VA:

    AACE.

Yang, Q. (2012). The impact of microblogging rise to college moral education. *The*

    Guide of Science & Education. 25, 20-22.

Yardi, S., & Boyd, D. (2010). Dynamic debates: An analysis of group polarization over

    time on Twitter. *Bulletin of Science, Technology & Society, 30*(5), 316-327.

Young, J. R. (2008). Forget e-mail: new messaging service has students and professors

    atwitter. *Chronicle of Higher Education, 54*(25), 15.

Yin, R. K. (2000). Rival explanations as an alternative to "reform as experiments". In L.

    Bickman (Ed.), *Validity & social experimentation: Donald Campell's legacy* (pp.

    239-266). Thousand Oaks, CA: Sage.

Yin, R. K. (2009). *Case study research: Design and methods*. Thousand Oaks, CA: Sage

    Publications.

Yin, R. K., Bateman, P. G., & Moore, G. B. (1983). *Case studies and organizational*

    innovations: Strengthening the connection. Washington, DC: COSMOS

    Corporation.

Zhang, T. (2012). Case study: A probe into the English language teaching strategies in a microblogging Environment. *Modern Educational Technology, 21*(6), 96-100.

Zhu, Z. (1996). *Cross-cultural portability of educational software: A communication-oriented approach*, Holland: University of Twente.