A PHENOMENOLOGICAL STUDY: EXPERIENCES OF CHINESE STUDENTS USING EDUCATIONAL TECHNOLOGY IN AMERICAN UNIVERSITIES

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Education

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December 2017

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This phenomenological study explores the educational technology experiences of ten Chinese international students at American universities. It describes their technology experiences and the influence on their technology self-efficacy and acculturation to the university culture in America. Seidman's (1998) three-interview approach was employed to collect data from each participant. Four major findings emerged from the interview data. First, there are differences in educational software, support and practices between Chinese and American universities. Second, despite the differences between Chinese and American educational technology, Chinese international students described their technology experience in America as positive since educational technology played an important role in accelerating learning, developing social connection, and promoting easier life on campus. Third, Chinese students' increased technology self-efficacy in America is related to students' previous technology experiences, external technology support, technology-integrated learning environments, user-friendly technologies, and accessible online resources. Lastly, educational technology promoted Chinese students' acculturation in American universities. The themes provide a greater understanding on Chinese students' technology levels, technology use, and technology preferences. The findings call for technology support from the international student service offices, departments, and educators in higher education to improve Chinese students' technology competence and facilitate their acculturation in American universities.

ACKNOWLEDGMENTS

There are so many people who, in many different ways, provided me with the support to make this dissertation a reality. I would first like to thank my chair, Dr. Kelli Paquette, who has been extremely supportive during this journey. Her patience, encouragement, positive outlook and timely feedback made it possible for the completion of this dissertation. Her professionalism, high efficiency and humor positively influenced me as a learner and teacher. I would also like to express my gratitude to my committee members: Dr. Crystal Machado and Dr. DeAnna Laverick. Dr. Machado's enthusiasm towards learning, teaching and research impressed me from the first day of my doctoral study in America. I feel fortunate to have her as a model for professionalism and high standards. I am grateful for her support, understanding and generosity of sharing with me various learning opportunities. I am also thankful to Dr. Laverick for her patience, support and timely feedback. Her dedication to teaching and research inspired me in different ways.

A special note of thanks must be given to the professors and staff in the Department of Professional Studies of Education at Indiana University of Pennsylvania. As an international student, I was fortunate to get so much care and support from the people in this loving family. Dr. George Bieger, Dr. Mark Twiest, Dr. Megan Twiest, Dr. Sue Rieg, Dr. Frank Corbett, Dr. Monte Tidwell, and Mrs. Patricia McDowell, thank you for your support and encouragement along this journey. You all filled me with appreciation, courage and kindness during my stay in IUP. I also want to thank all my classmates from my doctoral cohort. Thank you for helping me, encouraging me, and inspiring me to be a persistent learner and researcher.

I want to thank all the participants that were willing to participate in my study. Every student was generous in sharing his/her experiences and ideas. They were very patient and

supportive during the interviews. They all contributed to the significance of this study. At the time of this dissertation completion, some of them are still studying in America while many others have gone to other countries. Wherever they are now, I wish all the participants would achieve academic success and fulfill their life dreams.

I want to give special thanks to Connie, my dearest American mom. She is a strong yet tender woman, who always showers my family with care and love. I learnt so many wonderful things from her: humor, persistence, generosity and strong will power. I will always cherish her as my family.

I dedicate this dissertation to my incredible parents, Mingan Jiang and Fengling Han. You love me and support me unconditionally and showed me how a family unites when one needs support. Thank you for trying to spoil me like I'm still your little girl. All of this would have never been possible without the constant love and support of my husband, Huachuan Wen. Thank you for working diligently to support the family without complaints. Thank you for being by my side, loving me and encouraging me when I was in frustration and anxiety. Lastly, I want to thank my two wonderful daughters, Abigail and Claire. Thank you for making me more strong-willed than ever to achieve my goal. You are my motivation and inspiration to become a better and stronger person. This has not been an easy journey for me, but you drive me forward. I hope one day in the future, when you girls see this dissertation, you would be reminded of what I gained from this journey: either it is writing a dissertation, or trying to achieve other goals in life, we need wisdom, confidence, faith and perseverance. I tried my best to achieve my biggest accomplishment so far, and I believe you can, too.

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CHAPTER I

INTRODUCTION

Due to the economic and technological advancements of the 21st century, students are living in a different political, economic, cultural, and social world as compared to prior centuries. More than ever before, students need to be ready for living in a rapidly changing world, and work in a more multicultural and global environment (Atebe, 2011; Dunn, Dotson, Ford, & Roberts, 2014; Saha & Karpinski, 2016; Soria & Troisi, 2014). The number of global international students in general has been rising consistently (IIE, 2016; Saha & Karpinski, 2016). According to Project Atlas (IIE, 2016), which was based on a collaboration of national exchange agencies, and researchers who share accurate, comparable, and timely student mobility data, the host country where most international students choose to go is the United States.

In the past four decades, the number of international students in the United States has been constantly mounting (IIE, 2016). According to the Institute of International Education (IIE), the enrollment of international students in American colleges and universities has reached a record high of over one million in the 2015-16 academic year (IIE, 2016). California, New York, and Texas are the top three host states, which together hosted 32 percent of all these international students. Around the country, doctorate-granting universities currently host 64 percent of international students. Students from the top places of origin (China, India, South Korea, and Saudi Arabia) comprise over 60 percent of all international students (IIE, 2016).

China has been the leading place of origin for students coming to the United States in recent years (IIE, 2016). In the 2015-2016 academic year, 328,547 Chinese students came to the United States. This number of students increased by 8.1 percent compared to the number of students in the 2014-2015 academic year. Therefore, many colleges and universities have tried to

integrate students from non-English speaking countries such as China into United States campuses by adding English as a Second Language (ESL) classes, increasing support services, and offering special workshops on academic, social, and cultural issues (IIE, 2016).

International students in American universities offer diversified viewpoints, exchange cultural differences and internationalize higher education in America (Wan, Chapman, & Briggs, 1992). The National Association of Foreign Student Advisers (NAFSA, 2012) also indicates that international students build bridges between the United States and other countries; these students bring global perspectives into American classrooms, which helps prepare American students for global careers and often leads to longer-term business relationships and economic benefits (IIE, 2016). In addition, international students contribute to academia by demanding courses in the sciences and engineering which makes it possible for United States colleges and universities to offer those courses to American students (NAFSA, 2012; Wan et al., 1992). Furthermore, international students coming to the United States have a significant positive economic impact on the economy through their tuition, fees, and living expenses. IIE (2016) reported that more than 75 percent of all international students "receive the majority of their funds from sources outside of the United States, including personal and family sources, as well as assistance from their home country governments or universities" (p. 2). It is estimated that home country governments or universities contributed more than $35 billion to the United States economy in 2015 (IIE, 2016). The financial contributions not only benefit American higher education, but also support local businesses and communities with international students' spending on rent, transportation, and other expenses (NAFSA, 2012).

While international students bring financial benefits as well as academic and cultural contributions to the United States, the United States government promises to be "a supporter, a

convener, and a facilitator of international education" and wants to cultivate a new generation of students who understand what it means to be a citizen of the world" (Stock, 2012, p. 1). Yet, when the international students come to America, they go through multiple processes of psychological, physical, and mental adjustments (Baklashova & Kazakov, 2016; Han, Pistole, & Caldwell, 2017; Pascarella & Terenzini, 2005; Yan, 2017) due to the differences between the cultures of their own countries and America. To help the international students successfully adapt themselves to the American society and achieve their full potential, the United States government and American colleges and universities are responsible for helping international students to overcome various adjustment challenges (Cho & Yu, 2015; Gilliette, 2007; Hammons, Lee, Akins, Somasundaram, & Egan, 2004).

Problem Statement

Over the years, many studies have shown that international students go through psychological and physical adaptations in the cultural, academia, interpersonal aspects of a new culture (Heggins & Jacson, 2003; Jackson, Ray, & Bybell, 2013; Mesidor & Sly, 2016; Swagler & Ellis, 2003; Yan, 2017). For Chinese students who come from a quite different language, social, and cultural background, getting adapted to the American society is not an easy process (Yan, & Berliner, 2011). Among all of the adaptations Chinese students must make to acculturate themselves into the new culture, one type of adaptation that has received less attention in the research is the transition from the types of technology available in China to the new technologies in America (Strachan & Aljabali, 2015; Yan & Berliner, 2011).

Though technology is developing quickly in both countries, there seems to be a few differences in educational technology between the two countries. American classrooms have invested heavily in technology to facilitate teaching and learning (Black & Lassmann, 2016;

Kyei-Blankson, Keengwe, & Blankson, 2009; Pacheco, Smith, & Carr, 2017). American government has been encouraging investment in education technology to accelerate its use in the school settings, considering that "when carefully designed and thoughtfully applied, technology has the potential to accelerate, amplify, and expand the impact of powerful principles of learning" (U.S. Department of Education, 2017, p. 1).

In China, educational technology is gaining popularity (Deloitte, 2013). However, research on technology integration in Chinese classrooms was mostly carried out in big cities rather than rural schools (Chou, Collado, & Kantor Nagler, 2015). In addition, many differences exist between technology integration within Chinese and American education. At a macro level, as noted in Deloitte's (2013) study, China's big data-driven, collaborative, and personalized learning model reform is a long-term proposition. China's education IT implementation trajectory will "continually lag behind the U.S., Japan, and other developed countries" due to different educational system and students' learning goals (Deloitte, 2013, p. 19). In classrooms, technology integration also presents differences. Li and Ni (2010) indicated that teachers' technology use in China was more limited to teacher-centered purposes rather than student-centered activities. Thus, when Chinese students come to America and are involved in more diverse technology-integrated learning and living environments, differences in exposure to technology can be dramatic, and these differences may further affect international students' acculturation while they are studying in the United States. Yet, this problem has not received attention by many researchers. Until now, only a few researchers have focused on studying the international students' technology experiences in America, including Zhadko (2011), Breitkreuz (2011), and Qui (2011). A limited amount of research (e.g. Guo, 2015; Kun, 2016; Peng, 2017;

Qui, 2011) has been found to be especially designed to examine Chinese students' technology experiences in American universities.

Purpose of the Study

The purpose of this phenomenological study is to describe the educational technology experiences of Chinese international students who are studying in American universities. The study first explored the similarities and differences in terms of technology accessibility and usage in Chinese and American educational settings from the Chinese students' perspectives. Chinese students' general technology experiences in the United States were examined. Then, the study examined how the similarities and differences in the two educational settings influenced students' technology self-efficacy. Lastly, the study looked into the Chinese students' acculturation processes in the American universities and society, as well as the role in which technology may play in their acculturation. In general, the study aimed to explore Chinese students' educational technology experiences and their perceptions of ways in which these technology experiences affected their postsecondary studies, daily living, and acculturation in America.

Research Questions

The research questions for this qualitative study are:

1. What are the perceptions of Chinese students regarding educational technology in China and in the United States?

2. How do Chinese students describe their educational technology experiences in the United States?

3. How does the educational technology use in America influence Chinese students' technology self-efficacy?

4. How do Chinese students describe the role of educational technology in their acculturation in the United States?

Significance of the Study

As stated above, a literature review of this topic reveals that only a limited number of researchers have studied the international students' technology experiences in America (Breitkreuz, 2011; Guo, 2015; Kun, 2016; Peng, 2017; Qui, 2011; Zhadko, 2011) but so far no research has been found specifically designed to study the Chinese students' experiences with educational technology in the United States. Therefore, the present study fills a gap in the current literature that describes Chinese students' technology experiences in American universities and their perceptions on technology use. In addition, this study will describe students' perceptions of the differences in educational technology use between American and Chinese universities. It is hoped that this information will provide American educators with a general picture of Chinese students' technology levels and perceptions of technology use. This knowledge will assist American educators with possible methods to help these students cope with technology issues. For Chinese educators and programs that prepare students for international education in the future, the study will shed light on how to prepare students to better adjust to the new culture in terms of technology. Lastly, the study revealed how differences in technology use affect Chinese students' acculturation to the American culture. This information will enable higher education institutions to provide student services to assist Chinese students and international students from other countries to transition smoothly from their culture to a new culture.

Theoretical Framework of the Study

The purpose of this study is to describe the technology experiences of Chinese international students who are studying in American universities. The methodology for this study

is qualitative in nature in that it starts with an interpretive approach to study the problem (Creswell, 2013; Denzin & Lincoln, 2011). To study the students' technology experiences, the researcher will address research questions using a phenomenological approach. According to Creswell (2013), a phenomenological approach "describes the common meaning for several individuals of their lived experiences of a concept or a phenomenon" (p. 76). The data in the study will be collected through a series of in-depth interviews from the individuals who have experienced the phenomenon. Then, the investigators will closely examine the transcribed interviews and highlight "significant statements, sentence, or quotes that provide an understanding of how the participants experienced the phenomenon" (Creswell, 2013, p. 82) based on the phenomenological approach. Following Moustakas' (1994) guiding rules in phenomenological study, the analysis will explore carefully beneath layers of preconceptions and assumptions to direct experience, as well.

Definition of Terms

1. **Personal factors** in Social Cognitive Theory include a person's cognitive, affective, and biological events (Bandura, 1986). For the sake of this study, personal factors refer to Chinese students' change in their cognition and emotion due to technological changes in the new country, including their technology self-efficacy, their perception about differences of the educational technology between the two countries and their acculturation process influenced by the educational technology in the United States, among other changes.

2. **Behavior** in Social Cognitive Theory include both innately organized patterns of behavior and those "organized by individual experience and retained in neural codes" (Bandura, 1986, p. 22). In this study, behavior refers to Chinese students' behavior of coping with new educational technology, including, but not limited to, their positive and negative reactions and

responses towards new educational technology, as well as the behavior presented during their acculturation to the new country.

3. **Environmental factors** in Social Cognitive Theory refers to the external social context. In this study, they refer to students' educational technology experiences in the Chinese and American school settings, including access to technological hardware, software and technological modeling and support from the university or professors, among other factors.

4. **Social cognitive theory (SCT)** is a theory in which "human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive, and other personal factors, and environmental events all operate as interacting determinants of each other" (Bandura, 1986, p. 18).

5. **Technology self-efficacy (TSE)** refers to "the belief in one's ability to successfully perform a technologically sophisticated new task" (McDonald & Siegall, 1992, p. 467).

6. Educational technology is the study and ethical practice of "facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Januszewski & Molenda, 2008, p. 1). For this study, educational technology will include the specific hardware, software and technological support used for educational purposes, as well as other technological resources identified by students that they can get access to in the classrooms and around the campus.

7. A **learning management system (LMS)** is a "software program used by educational institutions to document, track, report and deliver electronic educational technology." (IGI Global, 2017, p. 4). In this study, LMS means Moodle, D2L, or other forms of LMS in the educational setting which serves as a platform for teachers' classroom instruction, content

development, and asynchronous or synchronous communication with students, as well as achieving other educational purposes within the higher education setting.

8. **Acculturation** is defined as "those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups" (Redfield, Linton, & Herskovits, 1936, p. 149). In this study, acculturation is limited to acculturation to an American educational technology environment and university life. The present study will categorize students' acculturation attitudes or strategies into integration, separation, assimilation, and marginalization (Berry, 1997).

Limitations of the Study

1. The fact that the researcher is an international student from China may become a limitation to the study. The researcher might assume that some notions of students' experiences in China are self-explanatory, while an outsider may need more details in understanding these notions. Moreover, the researcher has been in the United States for almost three years, during which time the technology use in the Chinese educational setting might have experienced great change. The researcher might keep some outdated presumptions that may influence the observer's objective judgment on students' knowledge of technology and technology use. Therefore, during the study, the researcher will be aware of the possible presumptions and subjectivity and try to avoid them.

2. Though the study tries to include Chinese international students from different parts of China, the family backgrounds of undergraduate students and graduate students can be very different. Many Chinese international students have similar family backgrounds---they come from wealthy families who could pay for their high tuitions and personal expenses in the United

States. On the contrary, many graduate students from China are from families with lower incomes; these students may need to support themselves by their own scholarship or fellowship. Therefore, the students from different family backgrounds may have different technology exposure in their personal lives and thus have different opinions on technology use as two different economic groups.

Summary

To summarize, this dissertation will explore Chinese international students' experiences with educational technology in American universities. The study will aim to find out how students describe these new experiences and whether these experiences influence students' technology self-efficacy and their acculturation to the school culture and the larger American society. The study fills a gap in the current literature that describes Chinese students' technology experiences in American universities. This study also alerts researchers, educators, and students at American higher education institutions on how to provide technology-related support to help smooth Chinese students' transition and acculturation in the United States, a linguistically and culturally different country.

In the next chapter, two major supporting theories for the study will be reviewed. Extensive research in literature that is closely related to the study will be presented. By comparing results from different studies and listing the implications and limitations of the previous studies, the researcher illuminates research gaps in the current literature that future studies can investigate.

CHAPTER II

LITERATURE REVIEW

The purpose of this literature review is to examine how Chinese students' technology experiences in the American classrooms influence their perceptions on their technology self-efficacy and their acculturation to American culture. Two major supporting theories will be reviewed: Social Cognitive Theory and Acculturation Theory. Afterwards, the previous research findings in the related field will be reviewed and the ways these findings inform the current research will be discussed.

Social Cognitive Theory

Social Cognitive Theory (SCT) is a theory stemming from the Social Learning Theory developed by Bandura (Bandura, 1969). In 1986, in *Social Foundations of Though and Action: A Social Cognitive Theory*, Bandura officially defined SCT as a theory in which "human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive, and other personal factors, and environmental events all operate as interacting determinants of each other " (Bandura, 1986, p. 18). In this book, Bandura described the philosophical and conceptual foundation for SCT and advanced a view of human functioning that accords a central role to cognitive, vicarious, self-regulatory, and self-reflective processes in human adaptation and change. The basic tenet of the theory is the triadic reciprocal determinism.

Triadic Reciprocal Determinism

The triadic reciprocal determinism refers to the bidirectional influence among personal factors, behavioral patterns, and environmental events. The determinism shows the impact humans have on the social environment of which they are a part and vice versa (reciprocity), as well as social influences on behavior (Schunk, Meece, & Pintrich, 2014).

Personal, behavioral, and environmental factors. Personal factors include a person's cognitive, affective, and biological events, including beliefs, thoughts, perceptions, goals, affect, and intentions. The basic tenet among all the personal factors is human agency. Bandura (1986) believed that the nature of people is defined in terms of a number of basic capabilities existing in human agency. These capabilities include symbolizing capability, forethought capability, vicarious capability, self-regulatory capability, and self-reflective capability (Bandura, 1986) which will be analyzed in detail below. The individuals are agents proactively engaged in their own development and the basic capabilities can shape and direct their behavior. In sum, a person's expectations, beliefs, self-perceptions, goals, and intentions guide his or her actions and make things happen (Pajares, 2002).

Behavioral factors include both innately organized patterns of behavior that are present at birth, as well as patterns of human behavior that are "organized by individual experience and retained in neural codes" (Bandura, 1986, p. 22). Environmental factors refer to the external social context, including the social influences and physical structures within the environment. Social influences convey information and activate emotional reactions, which develop and modify human expectations, beliefs, and emotional bents (Bandura, 1986).

According to Bandura (1986), human beings' behavior will influence the environment to which humans are exposed. In turn, their behavior is modified by the environment. At the same time, human beings' thoughts and emotions influence their behavior and the environment and vice versa. Bandura (1986) defined this triadic reciprocality as Reciprocal Determinism.

Reciprocal determinism. Social cognitive theory proposes "a model of causation in which behavior, cognition, and other personal factors, and environmental influences all operate as interacting determinants that influence each other bidirectionally" (Bandura, 1989, p. 2). The

interplay of the three factors constructs the functioning of humanity and forms a triadic reciprocal determinism, "the view that (a) personal factors in the form of cognition, affect, and biological events, (b) behavior, and (c) environmental influences create interactions that result in a triadic reciprocality" (Pajares, 2002). The following diagram (Pajares, 2002) presents the triadic reciprocal determinism of the three factors.

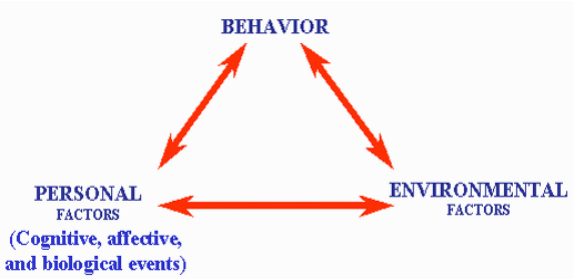

Figure 1. Triadic reciprocal determinism of the three factors.

The major interactional links between the different subsystems of influence was briefly analyzed by Bandura (1989) as follows:

> The P↔B of reciprocal causation reflects the interaction between thought, affect and action. Expectations, beliefs, self-perceptions, goals and intentions give shape and direction to behavior...The natural and extrinsic effects of their actions, in turn, partly determine their thought patterns and emotional reactions…The personal factor also encompasses the biological properties of the organism. Physical structure and sensory and neural systems affect behavior and impose constraints on capabilities. Sensory systems and brain structures are, in turn, modifiable by behavioral experiences. (Bandura, 1989, p. 3)

In general, people's biological properties, as well as their thoughts, beliefs, and feelings, affect their behavior and vice versa. For the interaction between personal factors and environmental factors, Bandura (1989) stated it as follows:

> The E↔P segment of reciprocal causation is concerned with the interactive relation between personal characteristics and environmental influences. Human expectations, beliefs, emotional bents and cognitive competencies are developed and modified by social influences that convey information and activate emotional reactions through modeling, instruction and social persuasion. People also evoke different reactions from their social environment by their physical characteristics...People similarly activate different social reactions depending on their socially conferred roles and status. (Bandura, 1989, p. 3)

Environmental factors influence and modify people's thoughts and feelings. In turn, their personal determinants, including age, race, sex, physical features, as well as their social reactions, can affect their social environment.

When analyzing the interaction between behavioral factors and environmental factors, Bandura (1986) stated:

> The B↔ E segment of reciprocal causation in the triadic system represents the two-way influence between behavior and the environment. In the transactions of everyday life, behavior alters environmental conditions and is, in turn, altered by the very conditions it creates. The environment is not a fixed entity that inevitably impinges upon individuals... The aspect of the potential environment that becomes the actual environment for given individuals thus depends on how they behave. (Bandura, 1986, p. 4)

Because of the interaction and bidirectional influence between behavior and environmental factors, "people are both products and producers of their environment" (Bandura, 1986, p. 4). People affect their environment by selecting and creating situations. The

environment, in turn, "partly determines which forms of behavior are developed and activated" (Bandura, 1986, p. 5).

When looking at the triadic reciprocal determinism as a whole system, Bandura (1989) emphasized that among the three different sources of influence, some may be stronger than others. Another note is that not all the influences occur simultaneously. As Bandura (1989) claimed, "It takes time for a causal factor to exert its influence and activate reciprocal influences" (pp. 2-3).

Self-efficacy. Among all the personal factors, one central and pervasive type of thought that affects action is the perceived self-efficacy. Self-efficacy is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1997, p. 3). It is the personal beliefs about one's capabilities to learn or perform actions at designated levels (Bandura, 1997). Self-efficacy is a belief about what a person can do rather than the skills that one holds. Research shows that self-efficacy will influence people's decisions of whether they would like to engage in particular tasks, the energy and effort they expend on those tasks, and the persistence and resilience that are shown during the pursuing process (Bandura, 1997; Bandura & Schunk, 1981).

Bandura (1977) outlined four sources of information on which people judge their efficacy: performance outcomes (mastery experiences), vicarious experiences, verbal persuasion, and physiological feedback (physiological and emotional stress). This information helps people determine if they believe in themselves in accomplishing specific tasks. Performance outcomes/mastery experiences are the most essential source of self-efficacy, referring to the past positive/negative experiences that can have positive/negative impacts on people's ability to perform certain tasks; vicarious experiences describe how people become influenced by social

modeling: they watch another model, compare their own competence with the model, and their self-efficacy is influenced; social persuasion is the encouragement or discouragement people get pertaining to their abilities of performing a task; and physiological feedback (physiological and emotional stress) refers to the sensations people get from their bodies and emotional states which can affect their self-efficacy (Bandura, 1977).

Social Cognitive Theory on Educational Technology

Educational technology has brought great changes to K-12 and postsecondary education (Cheung & Slavin, 2013; Irving, 2006; Shana, 2009). From the perspective of social cognitive theory, educational technology influences teachers and students in the following two ways.

Technology as an environment factor. According to Bandura (1989), "social and technological changes alter, often considerably, the kinds of life events that become customary in the society" (pp. 5-6). Put in the triadic reciprocal determinism, technology—an environment factor—is adopted in all aspects of our society and has dramatically changed people's lives. In a broader sense, "technology holds an important place in human life in a large variety of contexts from science to education, agriculture to commerce, transportation to communication and facilitates life and continues to develop" (Celik & Yesilyurt, 2013, p. 148). Technology changes people's personal factors such as interest, affection, beliefs and habits, as well as their behavior such as making choices. In turn, "the act of using a particular technology, e.g. the World Wide Web, changes those aspects of the environment, e.g. information, that a person can access" (Thatcher & Ndabeni, 2011, p. 131). People use and evaluate technology, as well as develop and innovate new technologies, furthering technological and social-economic development. In the educational setting specifically, educational technology is changing teachers' and students'

personal factors and their behaviors such as their way of teaching, learning, and assessment (Cheung & Slavin, 2013).

Studies indicated influences of using technology in teaching programs and evaluations on students' academic performance in the K-12 setting and higher education, including subjects such as reading, writing, and math (Cheung & Slavin, 2013; Irving, 2006; Shana, 2009). Technology-integrated instruction has also been found to assist English language learners to close their achievement gap with first language speakers (Keengwe & Hussein, 2014) and to positively affect achievement outcomes for disadvantaged students and students with special needs (Chambers & Coffey, 2013). Technology in the educational setting also influences students' beliefs, confidence, and self-efficacy in themselves. According to previous studies, students feel more confident, motivated, and willing to collaborate with others in the technology-integrated class (Carrió-Pastor, 2007; Nonaka & Nishiguchi, 2001). In short, the usage and innovations of technology bring changes to students' cognition, emotions and behaviors in different ways.

Technology self-efficacy. Technology Self-efficacy (TSE) is one aspect derived from a humans' general self-efficacy. It refers to "the belief in one's ability to successfully perform a technologically sophisticated new task" (McDonald & Siegall, 1992, p. 467). The definition of TSE may sound vague because it is generalizable across a number of specific technologies. It is a large construct consisting of more specific self-efficacy beliefs on using hardware and software, as well as technology-related tools, platforms, strategies, and support. It consists of computer self-efficacy, software self-efficacy, e-learning self-efficacy, Internet self-efficacy, and information technology self-efficacy. In the current study, the specific self-efficacy beliefs are all considered to be sub-dimensions of TSE.

As a personal factor, TSE is influenced by the environment. The four sources of information for self-efficacy were outlined by Bandura (1977): performance outcomes/mastery experiences, vicarious experiences, verbal persuasion, and physiological feedback (including physiological and emotional stress). Results from later studies indicated Bandura's (1977) reasonable analysis on the four sources. Varma (2010) collected data from 737 students in a major university and found that previous computer proficiency and habits influence students' technology acceptance. For instance, if students perform at high level of computer proficiency, they are likely to perceive future technology implementations more positively. Havelka (2003) indicated that previous computer experience can influence students' self-perceived levels of computer use. Positive computer experience could stimulate students to have higher levels of motivation and interest in adapting new technology whereas lack of experience with computers resulted in an increase in anxiety and low self-efficacy in using computers (Coffin & MacIntyre, 1999; Compeau & Higgins, 1995; Smith, Haygood, Akers, & Villareal, 2004).

The second source of information for TSC comes from people's vicarious technology experiences. Previous studies found that modeling or participation in technological training is closely connected with TSE (Brinkerhoff, 2006; Torkzadeh & Van Dyke, 2002). When the students received opportunities for reinforcement and demonstration after observing their instructor perform a technology-related task (for instance, students attempting to successfully use the technology without assistance), their TSE beliefs would increase (Brinkerhoff, 2006; Torkzadeh & Van Dyke, 2002).

The third source of information for TSC is verbal persuasion which comes from people or organizations' encouragement or support on technology use. The actions and statements of other people and the organizational encouragement and assistance can significantly change people's

perceptions of their likelihood for success (Compeau & Higgins, 1995). Specifically, "to the extent that persuasive boosts in self-efficacy lead people to try hard enough to succeed, they promote development of skills and a sense of personal efficacy" (Bandura, 1986, p. 400). In the school setting, students who are persuaded verbally or provided with technology support by professors, academic programs, and other service departments tend to believe that they possess the capabilities to fulfill specific technology tasks; thus, they are more likely to mobilize sustained effort to achieve success.

The last source of TSE is physiological feedback, including physiological and emotional stress that may generate from people's technological experience. According to Bandura (1986), "people rely partly on information from physiological state in judging their capabilities" (p. 401). While students may become anxious or frustrated due to their lack of technology experience or failure to utilize a new technology to fulfill tasks, their high level of anxiety can lead to low technology self-efficacy (Durndall & Haag, 2002). Therefore, anxiety, stress, and frustration would negatively influence students' judgments on their technology use.

In addition to the sources reviewed above, some studies stated that antecedents, such as access to resources and demographic characteristics, also influence students' technology use and their technology self-efficacy (Butler & Sellboom, 2002; Havelka, 2003; Shamburg, 2004). Limited access to resources, including insufficient computers and software licenses, slow internet connections and limited technology support, are considered to be one of the biggest barriers to technology adoption (Butler & Sellboom, 2002; Shamburg, 2004). Students cannot gain sufficient experience with technology from limited access to resources; therefore, their technology self-efficacy may be negatively influenced. Another antecedent that influences

students' technology self-efficacy is their demographic characteristics, which include, but are not limited to, their gender, ethnicity, age, and majors (Havelka, 2003; Mayall, 2008).

The concept of different sources of TSE sheds light on what factors need to be taken in account in analyzing international students' possible TSE change. Specifically derived from the four sources of TSE, the current study will focus on the following sources that may contribute to international students' TSE change: their previous computer experiences in their home country; their vicarious technology experiences in the host country; verbal persuasion from their professors, classmates and university in the host country; and anxiety or frustration that may emerge along with the use of new technologies.

In summary, SCT lays a solid theoretical foundation for the current study. Firstly, the triadic reciprocal determinism defines the three major components (environmental factors, personal factors, and behaviors) and their interactive effects on each other which forms a basis for analyzing the relationship among Chinese students' change in their cognition and emotion pertaining to technology use, their educational technology experiences in the Chinese and American school settings, and their behavior of coping with new educational technology. Secondly, the technology self-efficacy in SCT defines a personal factor that can greatly influence students' technology-use behaviors and performance which helps the current study explore students' possible cognitive, emotional and behavioral change in terms of technology use in the new cultural settings. Thirdly, SCT provides a theoretical foundation for the current study to investigate the relationship between students' experience of using technology in American universities and their acculturation in the universities that will be discussed below.

Acculturation

As SCT suggests, environmental factors influence human beings' personal factors and their behaviors. Acculturation refers to the changes in people's beliefs and behaviors due to the change in cultural settings (Redfield et al., 1936) and it can be influenced by technology use in the environment. SCT and acculturation theories lay a foundation for understanding the influence of technology on international students' acculturation into American society. In the following section, the definition and strategies of acculturation will be presented. Previous research on the role of technology in international students' acculturation will also be reviewed.

In 1936, Redfield, Linton, and Herskovits gave the first formal definition for acculturation: "those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups" (Redfield et al., 1936, p. 149). Analyzing acculturation at both group level and individual level, Berry (2005) defined acculturation as:

> …the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members. At the group level, it involves changes in social structures and institutions and in cultural practices. At the individual level, it involves changes in a person's behavioral repertoire. (pp. 698-699)

Acculturation changes could be either physical, psychological, biological, political, social, economic, cultural, or a combination (Sam, 2006, p. 16). This study focuses on psychological acculturation which often consists of affective, behavioral, and cognitive changes in the individuals (Sam, 2006, p. 16).

Acculturation Strategies

Berry (1997) discussed four strategies as various ways in which acculturation, both of groups and of individuals, could take place: integration, assimilation, separation, and marginalization. Berry (1997) discussed strategies along two dimensions: retention or rejection of an individual's native culture as well as retention or rejection of the host culture. At the level of the first dimension, the assimilation strategy is defined when the individuals from these ethnocultural groups do not wish to maintain their cultural identity and seek daily interaction with other cultures. When these ethnocultural groups are interested in maintaining both the original and host cultures, integration is the option. In the second dimension, when individuals wish to avoid interaction with others in favor of valuing their own culture, they use the separation strategy. When there is little interest in "cultural maintenance (often for reasons of enforced cultural loss) and having relations with others (often for reasons of exclusion or discrimination), then marginalization is defined" (Berry, 2006, p. 35).

Berry (2006) reviewed the previous studies on acculturation strategies and found that, in most studies, people expressed a preference for integration over the other three strategies, with marginalization being the least favorite. In a study on the acculturation and adaptation of young immigrants from 13 countries (Berry, Phinney, Sam, & Vedder, 2006), results indicated that those youths with an integration profile presented the best psychological and sociocultural adaptation outcomes. However, Berry (2006) stated that it is possible for individuals to have varied degrees of preference for each strategy. Birman, Simon, Chan, and Tran (2014) supported this statement and noted that the acculturation strategies immigrants use rely on the life domains they are in, e.g. education, family relations and the cultural demands of the specific settings.

International Students' Acculturation in Host Countries

Although the acculturation theory originated from the investigation on immigrant groups, a large number of studies approached the issue regarding international students' acculturation and adjustment to the host countries. International students face with various immigration issues and stay in the United States for temporary periods of time, which contribute to their differences from other immigrants and ethnic minorities in America (Mori, 2000; Sümer, 2009). At the same time, they try to adjust to the new academic and social environment without the support of their familiar coping resources in their native country (Nilsson, Butler, Shouse, & Joshi, 2008). Therefore, international students can go through difficult times in their acculturation to the life in the United States (Nilsson et al., 2008).

Some studies addressed the problems and challenges faced by international students (Nilsson et al, 2008; Sümer, 2009; Tseng & Newton, 2002; Ye, 2006; Zhang, 2009) due to socio-cultural factors, academic systems, and economic development differences between the host country and home country (Atebe, 2011). Tseng and Newton (2002) identified four major dimensions where adjustment problems often reside: general living adjustment, academic adjustment, socio-cultural adjustment, and personal psychological adjustment. Similarly, after reviewing literature on international students' adjustment in America, De Araujo (2011) identified six factors which were consistently associated with international students' adjustment issues: "English language proficiency, social support, length of stay in America, perceived discrimination or prejudice, establishing relationships with Americans, and homesickness" (pp. 3-5). Nilsson et al. (2008) specifically emphasized that perceived prejudice towards international students can increase their stress and prevent them from acculturating into the new environment. Some of the challenges are also listed in Atebe's (2011) study on international students'

adjustment in the United States: religious service, student activity, living and dining, academic record, and social, personal problems.

The relationship between the acculturation and coping strategies/styles and adjustment of international students is another focus of studies on international students' acculturation (Chataway & Berry, 1989; Tseng & Newton, 2002; Ward & Kennedy, 2001). For instance, Ward and Kennedy (2001) found three major coping styles related to psychological adjustment among British students in Singapore, including adopting an avoidant coping style, using a humor style, and employing an approach coping style.

Technology in International Students' Acculturation

Bandura (2001) emphasized that electronic media played an important role in socialization:

> Because the symbolic environment occupies a major part of people's everyday lives, much of the social construction of reality and shaping of public consciousness occurs through electronic acculturation. At the societal level, the electronic modes of influence are transforming how social systems operate and serving as a major vehicle for sociopolitical change. The study of acculturation in the present electronic age must be broadened to include electronic acculturation (p. 271).

As the world has entered into a new technology era, the connection between media and technology in international students' daily and academic environment and their acculturation and socialization in foreign countries received increased attention. Yang, Wu, Zhu, and Southwell (2004) found a correlation between international students' need for acculturation and media use motives and patterns. For instance, there were significant increases in international students' use of online information and platforms, e.g. email, instant messaging programs, online news, and

other sources of information, when they want to "fulfill certain information goals related to their adjustment to life in the U.S." (Yang et al., 2004, p. 92). The positive relation between students' use of Internet/technology and acculturation was also supported by Wang's (2006) study in which one of the eight motives for using the Internet among Chinese students was for acculturation. Ye (2006) investigated the traditional and online support networks in the cross-cultural adaptation of Chinese international students in the United States. The findings revealed that social networks could facilitate international students with the management of everyday social situations by providing crucial information and knowledge about life in the host culture. Even though these students' ties with social network are weak, social networks can function as important sources of new information. Similarly, in Zhadko's (2011) study, the participating international students reported that access to technology, early exposure to technology and use of technology for school purposes helped these students adapt faster to college life in the United States. More specifically, Yang (2016) analyzed the content of six Chinese international students' four-week diaries of their everyday difficulties and their solutions. The study found that mobile devices mediated Chinese students' problem solving process of intercultural communication and helped them adapt to the social communication. Mobile devices served as searching tools, social tools, information providers, presenting tools and capture tools for communication, self-efforts, finding references and critical cultural thinking (Yang, 2016).

A review of the previous literature shows that many studies have explored international students' acculturation into the host countries and how technology played a role in the acculturation process. However, these studies focused on the communicative purpose of technology by investigating technology in general (Wang, 2006; Yang et al., 2004), with only a small number of studies considering the role of educational technology in students' acculturation

(Albrecht, 2016; Chen, Bennett, & Maton, 2008; Yang, 2016). More research attention is needed in exploring educational technology's influence on students' acculturation into the school setting and the society in general.

Chinese Students' Experiences With Educational Technology in China and America

Over the years, researchers and educators have found that educational technology grew tremendously and facilitated with teaching in various ways (Black & Lassmann, 2016; Liu, 2016; Pacheco et al., 2017; Peng, 2017; Saha & Karpinski, 2016; Shah & Murtaza, 2012). In the following section, definitions, scopes, and benefits of educational technology will be summarized based on the previous literature. Then, some popular educational technology tools will be discussed, and their investment and applications in Chinese and American educational settings will be compared. Some technology-related challenges for Chinese students in American universities will also be stressed.

Definitions and Scopes of Educational Technology

For a long time, researchers and educators have had difficulty defining educational technology because there are conflicting definitions based on perspectives and concerns of members from different organizations and institutions (Roblyer, Edwards, & Havriluk, 1997). Within the last 20 years, people may often confuse educational technology with other terms, such as instructional technology and information and communication technology (ICT), among other terms. The Board of Directors of the Association for Educational Communications and Technology (AECT) approved a new definition of educational technology: "the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources" (Januszewski & Molenda, 2008, p. 1). Putting an emphasis on the process, Kinuthia and Marshall (2010) similarly defined educational

technology as “the technology that focuses on the study of the process of effectively facilitating learning and improving performance through developing, managing, and using relevant technology resources and processes” (p. xi). Simply speaking, a more trendy definition of educational technology does not only include “the use of hardware, software, and other digital technologies to advance learning, teaching, and administration” (Grinager, 2006, p. 1) in education settings, but also involves the soft technology, referring to immaterial resources which can include processes, practices, and theories (Lakhana, 2014; Waghid, Waghid, & Waghid, 2016).

In a broader sense, educational technology is a construct “that is larger than instructional technology, as education is more inclusive than instruction” (Januszewski & Molenda, 2008, p. 13). Therefore, it can encompass instructional technology and other learning and teaching processes such as information and communication technology in education, learning management systems (LMS), multimedia learning, and technology-enhanced learning. Educational technology involves “multiple disciplines, multiple activities, multiple people, multiple tools, and multiple opportunities to facilitate meaningful change” (Spector, Merrill, Elen, & Bishop, 2014, p. 11). In a narrower sense, educational technology can refer to specific hardware, software, and immaterial resources (Spector et al., 2014). When studying educational technology use among schools of pharmacy, Monaghan et al. (2011) defined the educational technology domains, including software and hardware used for instruction, “software used for communication, technology requirements for experiential education, and technology support” (p. 2). There is a range of sub-domains under some of the categories. For instance, software used for instruction includes course management (Blackboard), web conferencing, blogging/micro-blogging tools, document collaboration, Wiki tool, presentation tools, and email, among others.

Hardware use for instruction includes presentation tools and required computer use. Software used for communication includes social media and social video/photo sharing (Monaghan et al., 2011). The study also included technology support as a sub-domain in educational technology.

In this present study, educational technology includes the specific hardware and software used for educational purposes, as well as the immaterial resources that can include processes, practices, and theories (Lakhana, 2014; Waghid et al., 2016), such as technological support in and outside the campus, the practices of integrating technology into teaching and administration, and beliefs on using educational technology. Simply put, educational technology in the current study contains four aspects: hardware, software, technological support, and technology beliefs/preferences and practices.

Educational Technology in International Classrooms

Fox (2005) illustrated that educational institutions use and access to new and current technologies is on the rise and educational technology is "ongoing, unstoppable, and necessary" (p. 42) in educational settings. Educational technology is now being practiced in different fields at higher education around the world (Chou, Collado, & Kantor Nagler, 2015; Kyser, McKenna & Williams, 2015; Shah & Murtaza, 2012; Tsai & Hwang, 2013; Yoo & Huang, 2011). In America, studies indicated that educational technology could positively impact students in terms of writing skills (Kyser et al., 2015), math skills (Nickerson & Zodhiates, 2013), and collaborative learning competence (O'Donnell, Hmelo-Silver, & Erkens, 2013). Practices with educational technology have been carried out in a variety of classrooms from STEM (Bartholomew et al., 2017) and nursing (Chung, Yan, & Davis, 2017) to language (Haiyan, 2015; Kessler & Hubbard, 2017) and teacher education (Boche & Shoffner, 2017).

Shah and Murtaza (2012) collected data from 350 students from higher educational institutions in Pakistan and explored the role of educational technology in promoting comprehension learning. They found that educational technology in general is significantly helpful to enhancing the comprehension learning, confidence, and motivation of the students. In the study, a large number of teachers and students believed that teachers should be provided training regarding the use of educational technology so as to create more interesting and engaging learning experiences. Shah and Murtaza (2012) also concluded that modern trends in the use of educational technology are being developed rapidly at higher educational institutions in Pakistan.

Kozma (2003) examined 174 cases on how ICT was used to support innovative classroom practices by analyzing interviews of administrators, teachers, students, and parents; classroom observations; and analysis of documents from 28 countries in Europe, North America, Asia, Africa, and South America. A large majority of cases claimed "students developed positive attitudes toward learning, acquired new subject matter knowledge, or acquired collaborative skills" (Kozma, 2003, p. 52). Other positive outcomes found in the cases in the United States, Philippines, and Hong Kong include: "students' improvement in technology literacy, collaboration, written communication, and oral communication"; "students learn to handle the work of a financial organization, cooperate with other people as a team, search for, organize, and analyze information and present their findings" (Kozma, 2003, p. 53). Although the cases are from different countries, Kozma (2003) found similar patterns in these ICT integrated classrooms: "teachers used ICT to collaborate with their colleagues, connect multiple subjects, provide students with structure, and monitor and assess progress. Students worked together using computer tools and resources to search for information, conduct research, and create products"

(p. 53). However, Kozma (2003) emphasized that what matters most for educational change is not having much technology or sophisticated technology, but how teachers integrate technology into the curriculum.

A review of the previous literature shows that educational technology has been brought to international educational settings and could assist teachers and students with various teaching and learning purposes. In the following section, a comparison of some major educational technologies will be conducted between China and America.

A Comparison of Some Major Educational Technologies in China and the United States

Educational technology consists of various tools and materials, with different technological software, hardware, platforms, or resources serving different educational purposes (Spector et al., 2014). In the following sections, some major technologies and materials that students are likely to access on a regular basis will be discussed. A comparison will be made on educational technology's influences on Chinese and American higher education.

Learning management systems (LMS). An LMS is a "software program used by educational institutions to document, track, report and deliver electronic educational technology." (IGI Global, 2017, p. 4). Berking and Gallagher (2014) simply defined LMS as "a key enabling technology for 'anytime, anywhere' access to learning content and administration" (p. 6). Instructors can fulfill a full management of the entire educational cycle by delivering a high level of knowledge into a domain in the shortest time possible with a set of software platforms and various hardware means.

The past decades have seen enormous growth in LMS in higher education institutions in America. They are currently utilized in online classrooms, traditional classrooms, and blended learning settings (Petherbridge & Chapman, 2007; Schoonenboom, 2014). While there are a

variety of LMS providers in the market, Dobre (2013) reviewed the available statistics and found that the main categories of LMSs the market offers include: Proprietary LMSs (or commercial LMSs), Open-source LMSs, Cloud-based LMSs, and Hybrid LMSs (usually developed in house). Eductechnica.com (2017) presented a series of statistics of the detailed LMS usage data for American higher education organizations. The data indicated that LMS usage in the United States was still growing and different LMS providers were thriving in a competitive environment. The most significant overall trend found recently is that fewer schools are running multiple LMSs.

	ANGEL	BbLearn	Canvas	D2L	Moodle	Sakai	Pearson	Other	None
Institutions	34	1185	713	360	678	107	105	494	252
	1%	33%	19.8%	10%	18.9%	3%	2.9%	13.7%	7%
Enrollments	124,679	7,383,086	4,773,367	2,314,816	2,611,762	757,643	353,688	1,420,744	248,488
	0.7%	43.5%	28.1%	13.6%	15.4%	4.5%	2.1%	8.4%	1.5%
Average Size	3667	6246	6704	6430	3852	7081	3368	2876	990
Median Size	1597	3365	3295	3568	1899	2828	1022	1001	722

Figure 2. LMS usage data in 2016. It presents detailed LMS usage data in 2016 for USA higher education organizations, as presented in Edutechnica (2017). BbLearn = Blackboard Learn; D2L = Desire2Learn.

From the data in Figure 2, one can see that in the year of 2016 in the United States, Blackboard was the leading provider in the higher education market, with Moodle and D2L being the next two largest ones. Although these LMS providers fall under different LMS categories (for instance, Blackboard and D2L are commercial LMSs while Moodle and Canvas are open source software), there is no doubt that they are all able to offer effective

learning and teaching services in higher education and bring essential changes to the higher education system.

The benefits of adopting LMSs at higher education have been reported in many studies (van Rooij, 2012; Weaver, Spratt, & Nair, 2008). LMSs provide varying levels of support provided to staff and students during the implementation phases at higher education (Weaver et al., 2008). For instance, used in the class settings for course management, LMSs span multiple class sessions across an entire course with common goals, adding tools for evaluation, feedback, and discussion (Adams, 2011, p. 254). For administrators and staff, LMSs are "essential to ongoing operations as student information systems, financial systems, human resource systems, and e-mail systems" in higher education (van Rooij, 2012, p. 115).

In contrast to the fast growth of LMS usage in the United States, China is still at its initial stage of integrating LMSs in higher education. For a long time, higher education institutions in China have been faced with insufficient investment in educational technology (Hu, 2005). Hence, open-source software (OSS) is a better option for higher education institutions (Pan & Bonk, 2007).

Among the earliest LMSs that were used in Chinese higher education institutions was Moodle, which was relatively popular in the early 2000s. According to Pan and Bonk (2007), as of 2007, Chinese versions of Moodle were available, and the number of Moodle sites in mainland China was well over 100. However, as of 2015, no Chinese version of Moodle can be found on the official Moodle website. The only few studies on Moodle conducted by Chinese educators are Wang's (2014) study on design and practice of computer fundamental courses with Moodle as well as other articles reviewing the functions, potentials, and risks that Moodle can bring to education (Gai, 2012).

Although there are not many reported cases of OSS applications in Chinese higher education institutions, of the limited numbers of OSS in China, *Red Flag Linux* (RFL) is a major one designed for widespread adoption and application in China (Pan & Bonk, 2007). Sponsored and incubated by the Chinese Government, RFL now is the leading OSS platform *that* does not require user licenses, so it is financially accessible for many institutions and individuals who cannot afford commercial software with similar functions. On its website, RFL (2015) claimed that it has built partnerships with a great number of local, provincial, and national companies and institutions, as well as the Chinese government. However, the company's introduction on its official website indicated that the focus of the company now is more towards providing service in the office settings. Its collaboration with higher education institutions is at the initial stage, where they provide technology training, service, and the Redflag Instructor Certified Program for a number of educational sites around the country. A widespread application of the RFL technology is not indicated from the website nor from the studies in the related field, with only a few journal articles and dissertations describing its constructs and potential benefits (Liu, 2010; Tian & Lian, 2008).

Yi (2015) discussed the current situation of LMS in China and listed a few university-based companies that were building up LMS platforms. The difficulties of introducing foreign LMS to China lie in the inadequate support from the government, lack of funding in universities, competition with local resources and people's rooted habits of using familiar technology (Yi, 2015). In addition, Qiao (2017) noted that big data-driven, collaborative, and personalized learning models supported by LMS have not gained enough attention in China. Most importantly, China has a different educational system as compared with other countries (Qiao,

2017). In general, LMS development is still at its initial stage in China's higher education system (Qiao, 2017; Yi, 2015).

Interactive whiteboard (IWB). Kennewell and Beauchamp (2007) described IWB as an added ICT, and it is increasingly being used to promote collaborative learning in the classrooms from elementary schools to university lecture halls (Smith, Higgins, Wall, & Miller, 2005). As defined by John and Wheeler (2008), the fully functioning IWB is composed of four essential components: a computer, a projector, appropriate software, and a display panel. Therefore, IWB is a holistic pedagogical package that brings the above-mentioned components together. The way it functions is that "the projector will display the computer-screen image on the board and the functions of the display panel are communicated to the board via the software" (John & Wheeler, 2008, p. 47).

Since it is an integration of the software and hardware mentioned above, IWB is able to combine their capabilities, including visual displays, audio, and touch sensitivity (Hall & Higgins, 2005). IWB's features, functions, usages, and benefits in higher education are identified in a number of studies (Campbell & Martin, 2010; Gatlin, 2004; Smith et al., 2005). For instance, with IWBs, teachers can annotate using electronic notes (Gatlin, 2004) and record live classroom activity with the help of certain software (Fletcher, 2006). In this way, teachers can keep separate annotations and pacing for each session (Nolan, 2009). In addition, Campbell and Martin (2010) stated that IWBs offer "a more varied use of teaching materials, as they allow creative and dynamic integration of Web-based materials, rich media and manipulation of text and images" (p. 69). From a wider perspective, Smith et al. (2005) highlighted a number of themes that emphasize the potential benefits of IWBs for teaching and learning in classrooms: flexibility and

versatility, multimedia/ multi-modal presentation, efficiency, supporting planning and the development of resources, modeling ICT skills, and interactivity and participation.

Studies on the outcomes using IWBs indicate that with the appropriate teaching pedagogy and adequate technological support, instructors are able to use IWBs to achieve better instructional outcomes. Campbell and Martin (2010) studied 212 pre-service teachers to see how they used IWBs to incorporate e-teaching into their lessons. The results showed that the majority of students who were engaged in using IWB created more engaging and informative class work. In the similar vein, Akbaş and Pektaş (2011) studied the effects of IWBs on students' academic achievement, and found that IWBs promoted students' participation and created a more enjoyable classroom atmosphere. Generally speaking, the flexibility and versatility of IWBs provide huge potential benefits for teaching and learning in classrooms (Smith et al., 2005). However, Smith et al. (2005) made a note that IWBs can supplement traditional techniques and encourage collaborative involvement when used properly. As with all pedagogical technologies, IWBs depends for its success on the quality of teaching and its strategic and creative use in often traditionally defined spaces.

According to Futuresource Consulting (2015), a research firm specializing in doing specialist research and consulting services on technological developments, the IWB market has grown at a tremendous pace over the last decade in the United States, and now they have become popular globally. By comparing the data on IWB Usage in 2011 and 2014 in the United States, Education Market Research (2014) reported that the growth of the installed base of IWBs and of the usage of IWBs for instructional purposes has continued at a rapid rate. For instance, in their survey (EMR, 2014), 82.9% of educators have at least some experience using the IWB in the

classroom. Among them, 70.9% of the educators said they use an IWB with their students every day. The average usage duration was 4.7 hours per week.

As more IWBs are put into use and its educational advantages are acquiring public recognition, there are an increased number of studies on the positive effects that IWBs bring to higher education classrooms in the United States (Campbell & Martin, 2010; DiGregorio & Sobel-Lojeski, 2010). In contrast, there are very few studies on how IWBs are being used in Chinese universities (e.g. Xu & Moloney, 2011; Yang, 2011). Instead, some studies and articles reviewed how IWBs can be used in Chinese elementary and secondary classrooms from a theoretical perspective (Shi, Yang, Wu, & Zhu, 2015; Yang & Teng, 2014). One reason for the difference between China and other developed countries in IWB application is that IWBs are more popular in developed countries where institutions and governments are able to invest large sums into the procurement, deployment, and development of IWBs and its supporting software and resources (Slay, Siebörger, & Hodgkinson-Williams, 2008). China, as a developing country, however, does not have widespread usage of IWBs due to low budget in technology investment and inadequate technical support from the government (Jiang, 2016).

Web 2.0. Web 2.0 platforms are "web-based platforms that predominantly support online social networking, online community-building, and maintenance, collaborative information production and sharing, and user-generated content production, diffusion, and consumption" (Fuchs, Boersma, Albrechtslund, & Sandoval, 2013, p. 3). A term popularized by O'Reilly 2004, Web 2.0 builds on an architecture of user participation rather than passive consumption. At least in theory, "the web can be seen as a vast network of interconnected services that allows users to move their content across and between a variety of applications and contexts" (Selwyn, 2007, p. 2).

Mason and Rennie (2008) listed a few Web 2.0 tools that are used widely: "blogs, wikis, podcasts, e-portfolios, social networking, social bookmarking, photo sharing, Second Life, online forums, video messaging, e-books, instant messaging, Skype, games, mashups, mobile learning, RSS feeds, YouTube, and audiographics" (p. 61). These tools make Web 2.0 a place "where people share content, collaborate on projects and interact with one another" (Kovalik et al., 2014, p. 91). Although they are widely used by individuals for personal purposes, Web 2.0 tools have shown their potentials in promoting teaching and learning in the classroom settings, including at higher education. Grosseck (2009) listed a few advantages that Web 2.0 can offer in higher education, including easier and faster access to information, easier resource sharing, and its compatibility with dynamic learning contexts. Lin (2013) added that Web 2.0 technologies have great potential to transform higher education through challenging old thinking and offering new possibilities regarding knowledge acquisition, learning paradigms, and course structure. In a broader sense, Franklin and Van Harmelen (2007) concluded that "Web 2.0 will affect how universities go about the business of education, from learning, teaching and assessment, through contact with school communities, widening participation, interfacing with industry, and maintaining contact with alumni" (p. 1). In the following section, a few popular Web 2.0 tools will be briefly discussed.

Wikipedia and Wikis. Wikipedia is a multilingual, web-based, free content encyclopedia project supported by the Wikimedia Foundation and based on a model of openly editable content (Wikipedia, 2015). Since its creation in 2001, Wikipedia has grown rapidly into one of the largest reference websites, attracting 470 million visitors monthly as of February 2012 (Wikimedia Report Card February 2012, 2012). A wiki is a website on which users collaboratively modify content and structure directly from the web browser.

Wikis have been used in education since 2004 and they can address a range of objectives (Donne, 2012; Part, Crocker, Nussey, Springate, & Hutchings, 2010). In Donne's study (2012), 48 teachers and pre-service teachers from a graduate course used Wiki as a platform for online activities. The results of the study indicated that Wiki in higher education promotes online collaboration and new knowledge construction. In addition, Grosseck (2009) listed some other possible applications of Wikis in university classrooms: for student projects; as a presentation tool (as e-portfolios); as a group research project for a specific idea, managing school and classroom documents; as a classroom discussion and debate area; a place to aggregate web resources; supporting committees, working parties and university projects, among other uses. Generally speaking, Wikis could positively enhance the learning experience in higher education (Lamb, 2004).

As one of the most popular websites around the world, the Chinese Wikipedia started in 2002 and currently has about 964,973 articles and about 2,420,721 registered users as of September 2017 (Wikipedia, 2017). Jiang, Benefield, Yang and Barnett (2017) conducted an "inter-language semantic network analysis examining the differences between articles about China in the Chinese and English versions of Wikipedia" (p. 2233). The study found a great amount of differences "between the semantic content of the English and Chinese versions of articles on China" (p. 2233). While both pages covered similar topics, contributors from two different cultural backgrounds "illustrate the meaning and image of China in different ways" (p.2240). The reason was, according to the study, the differences in "cultures, values, interests, situations, and emotions of different language groups" (p. 2241). Therefore, the messages passed on to readers vary between Chinese and American Wikipedia (Jiang et al., 2017).

Blogs. Blogs are described as "a type of webpage that is simple to create and disseminate and that is used as a form of online journal by millions of users" (Mason & Rennie, 2008, p. 62). When viewed from the user's or visitor's perspective, a blog is a website with the following features: "content arranged as entries of text and hyperlinks, posted in reverse chronological order; a time stamp for each entry so the reader knows when it was posted; and an archive of previously posted content that can be easily accessed by visitors" (Vogel & Goans, 2005, p. 9). WordPress, Blogger, and Edublogs are some of the blogging platforms. Twitter and Tumblr are some of the "microblogging" systems that allow users to exchange small elements of content. Studies show that a great number of faculty and staff are taking advantage of blogging/microblogging to promote teaching, learning and communication in higher education (Morgan, 2015; Miyazoe, Anderson, & Sato, 2014). For instance, faculty may use blogs to design curriculum-related activities in class to promote students' English skills such as writing and grammar (Fischer, Haley, Saarinen, & Chretien, 2011; Miyazoe et al., 2014), as well as their cognitive and social skills such as motivation and collaboration (Morgan, 2015). Meanwhile, faculty can use blogging as sources of information and professional development materials (Cater, Davis, Leger, Machtmes, & Arcemont, 2013; Zha, Adams, & Mathews-Ailsworth, 2013). Libraries are using blogging to deliver information about library news, services, and resources to faculty and students and achieve positive outcomes (Chatfield, Ratajeski, Wang, & Bardyn, 2010; Vogel & Goans, 2005). In general, the blog can be an effective Web 2.0 tool in the higher education in the United States.

Blogging and microblogging (combination of blogging and instant messaging) started gaining popularity in China since the early 2000s, when the first Chinese blog website "Bo Ke" was created in 2002. As of March 2014, there were 248.84 million microblog users in China

(Statista.com, 2015). Fan (2014) conducted a study on using blogs and microblogs in the library as a platform for building up an interactive relationship with students. Fan (2014) studied 26 libraries with microblogs in 26 Chinese universities and found microblogs worked as effective platforms to promote reference, share library resources and provide timely services to students. These potential benefits of using blogs and microblogs were also emphasized by other researchers (Jia, 2011; Jin, 2014; Ren, 2011; Shen, 2013). Meanwhile, these studies point out some common problems existing in university libraries in using microblogs, including varied qualities of microblogs' construction among different libraries and infrequent/poor maintenance of some microblogs (Fan, 2014; Yang, Xu & Shao, 2012).

Social networking site. Social networking site (SNS) can be defined as "web-based services that allow individuals to 1) construct a public or semi-public profile within a bounded system, 2) articulate a list of other users with whom they share a connection, and 3) view and traverse their list of connections and those made by others within the system" (Boyd & Ellison, 2007, p. 211). SNS includes social communities, such as Facebook, Twitter, MySpace and Flicker, etc. According to Statista.com (2015), as of March 2015, the ranking of the top five social media websites in the United States based on the share of visits is as follows: Facebook (53.4%), YouTube (17.2%), Google Plus (4.06%), Twitter (3.1%), and Reddit (1.81%). The average time Americans spent on social media each day has been found to be 2.7 hours (We Are Social, 2015). Mobile devices, such as laptops, smartphones and tablets, played a significant role in the development of SNS primarily due to easy access through apps (Statista.com, 2013). Statista.com (2013) reported that as of the fourth quarter in 2013, Facebook was the most popular mobile social app globally. Social media has become a central part of life today because

SNSs "offer an interactive, user-submitted network of friends, personal profiles, blogs, groups, photos, music, and videos internationally" (Mason & Rennie, 2008, p. 77).

The easy-to-access sharing, commenting, and creating in SNS have brought benefits to classrooms and in higher education environments. Wilson (2013) listed several cases of SNS applications in a few American universities, indicating that SNSs can be used in higher education for student support and administrative services, as well as for teaching and learning purposes. Pearson Learning Solutions and Babson Survey Research Group sponsored a survey (Moran, Seaman, & Tinti-Kane, 2011) on how today's higher education faculty use social media. Results of the survey showed that as of 2011, over 90% of all faculty in the study were using social media in courses they were teaching or for their professional careers outside the classroom. An overwhelming majority reported that they believe SNSs are valuable tools for teaching and collaborative learning.

A plethora of research has been done to investigate the pedagogical potential of a SNS (e.g. Facebook, Twitter, YouTube, etc.) in American higher education classrooms. Among them, a considerable body of research found that SNSs are able to facilitate faculty in achieving different teaching purposes. For instance, SNSs in classroom can increase student participation and engagement (Clayton, Hettche, & Dae-Hee, 2014; Graham, 2014; Junco, Heiberger, & Loken, 2011), influence students' academic performance, such as in writing or overall GPA (Junco et al., 2011; Wen, 2015), and develop students' cognitive skills, such as critical thinking (Machado & Jiang, 2014). Some other studies examined students' perceptions on SNS use in the classroom and many found that students perceived SNS as a convenient tool in the classroom (Denton & Wicks, 2013; McCole, Everett, & Rivera, 2014; Roblyer, McDaniel, Webb, Herman, & Witty, 2010). Interestingly, Roblyer et al. (2010) compared 62 faculty's and 120 students'

responses to Facebook use in higher education and found that students are obviously more open to the possibility of using Facebook and similar technologies to support classroom work.

Web 2.0 tools, especially social media, gained great popularity in China in the past decade (Zhai & Liu, 2007). According to Statista.com (2015), among the top 10 social networks worldwide as of March 2015 (ranked by number of active users) were three Chinese SNSs: QQ (an instant messaging software), QZone (a blogging tool that combines the features of Facebook and Tumblr) and WeChat (an instant messaging app). Therefore, although some world-leading SNSs such as Facebook, YouTube and Twitter are blocked in China, China's SNS landscape is not incomparable with its western counterparts. It is expected that the number of China's top social networks' users worldwide will reach 1.96 billion in 2015 and will amount to 2.44 billion in another three years (Statista.com, 2015).

As one of China's most popular instant messaging mobile app, WeChat combines the features of Facebook, YouTube, Twitter, WhatsApp, and Instagram and the number of its users have skyrocketed to 549 million since its invention in 2013 (CuriosityChina, 2015). With the majority of Chinese students beginning to use mobile devices, such as smartphones and tablets, educators are considering the pedagogical possibility of using WeChat in higher education classrooms since it can serve various teaching and learning purposes (Xu, Kang, Song, & Clarke, 2015). For instance, WeChat offers diversified means of methods of communication and interaction so that it can facilitate designing engaging activities and improve students' English level in English as Foreign Language (EFL) classes (Wang, 2014; Zhang, 2014), English for Specific Purpose (ESP) classes (Zhongwen, 2014) and commercial advertisement classes (Ding, 2013). It also promotes students' collaborative learning and peer support in different classes (Su, 2014). Moreover, with the proper guidance from administrators and educators, WeChat can be

used as an effective platform for moral education and promoting positive school culture (Li, 2013; Liang, Li & Li, 2014).

However, even though Web 2.0 tools are gaining Chinese researchers' and educators' attention, most of the current literature is confined to integrating Web 2.0 in EFL classrooms. After reviewing a number of articles and dissertations in the related field at China National Knowledge Infrastructure (CNKI, currently the largest database for journal articles and dissertations in mainland China), the researcher of this present study found there is a lack of empirical studies in the following fields: 1) integrating Web 2.0 tools in different classroom settings such as Biology, Business, Journalism, and Math; 2) integrating Web 2.0 tools at the school/administrative level; and 3) using Web 2.0 for students comprehensive development, such as enhancing students' cognitive and social skills (leadership, problem-solving, group collaboration and critical thinking). Therefore, greater potentials of Web 2.0 applications in higher education still await to be explored in China.

Technology-Related Challenges for Chinese Students in American Universities

From the perspective of SCT discussed above, technology as an environmental factor can change students' personal factors and their behavior (Cheung & Slavin, 2013; Qian, 2008). For Chinese students who come to the United States in pursuit of postsecondary education, experiencing different technology access and usage across different classroom settings can also influence their personal factors and behavior. Therefore, it is crucial to understand what major technology-related challenges Chinese students may experience in American universities, as negative technology experience may hinder their learning. Three differences that the students may encounter are discussed below.

Different technology access for students. As reviewed above, there is a sharp contrast between the United States and China in terms of investments in some major aspects of educational technology, such as LMS. LMSs are so widely used in American universities that almost every university has adopted at least one kind of LMS (Weaver et al., 2008). In comparison, as a developing country, China still remains at its initial stage of introducing its own open source RFL to higher education and building up LMSs (Liu, 2010; Tian & Lian, 2008; Yi, 2015). In Chinese higher education classrooms, students may not have much learning experience supported by certain advanced technological hardware or platforms that might have been taken for granted by most of their American peers. Therefore, at the beginning of their postsecondary study in American universities, Chinese students need to quickly learn to use certain advanced technologies such as LMSs to accomplish learning tasks. As prior experience with technology can influence an individual's future use of newer technology (Varma, 2010), Chinese international students' experiences with different technology access offered in two educational settings may pose challenges for them.

Different Web 2.0 tools. Despite the similarities in using Web 2.0 to connect with other people, the popular Web 2.0 tools being used are different in the two countries. Chinese Internet censorship led to a wide variety of Internet laws and administrative regulations, which blocked many foreign social network sites and Web 2.0 tools. In the United States, the top three social media websites are Facebook, YouTube, and Google Plus; in China, the top three are QQ, Qzone, and WeChat (Statista.com, 2015).

As for Chinese international students, they are very familiar with Chinese Web 2.0 tools, yet they may not know or have used the American counterparts. Therefore, another technology-related challenge for Chinese international students in American universities is that they need to

learn to join in the new SNSs to develop relationships with their American classmates and friends and to actively participate in communities on campus (Lima & Brown, 2007). Another potential problem is that the technology they feel comfortable to use might allow them to stay in touch with their friends and family close in China, therefore slowing their acculturation process into the new educational setting (Lima & Brown, 2007).

Cultural difference in using technology. Albrecht (2016) stated that culture influenced how students use technology. Several studies have found that students' preference, attitudes, and choice towards technology are influenced by their culture (Albrecht, 2016; Li & Kirkup, 2007; Liu, Liu, Lee, & Magjuka, 2010; Pfeil, Zaphiris, & Ang, 2006; Wang & Sun, 2007; Xu & Mocarski, 2014; Yoo & Huang, 2011). For instance, Pfeil et al. (2006) suggested that technology itself is neutral, but users may use it differently due to cultural differences.

Yoo and Huang (2011) conducted a study on the cultural differences in the use and acceptance of Web 2.0 applications between American and Korean college students. The results showed that Korean students reported positive attitudes towards using blogs while American students felt comfortable in participating in online social communities (e.g. Facebook). The reason for these different preferences for the Web 2.0 uses, as explained by Yoo and Huang (2011), was the students' cultural difference in terms of power distance, individualism/collectivism, and uncertainty avoidance tendencies. For instance, one explanation for Korean students' preference for blogs was that blogs allowed students to articulate their opinions without worrying about potential criticism by other participants who might be placed at a higher level of the power hierarchy. On the contrary, American students come from a society that values more about the content rather than contexts when interpreting meanings of communications. This may explain the reason American students in the study felt comfortable

with using instant messenger to communicate on the content only. The study indicated that cultural differences can be an important reason for Western and Asian students' different technology preferences and utilization.

Zhao and McDougall (2008) studied the influence of cultural differences on Chinese students' online learning, and reported six cultural factors influencing their online learning. They include "unfamiliarity with the disciplinary culture, ignorance of Western social life, the Chinese cultural personality, attitudes towards presenting opinions in public, high levels of achievement motivation, and their image of the instructor as authoritative" (p. 74). The findings allow better understanding of the challenges that Chinese international students may face in American classrooms. For instance, teachers are the authority in Chinese classrooms. Under most circumstances, Chinese students were more likely to play a passive and compliant role than to participate actively in class because they value knowledge and content more than critical thinking and creative skills (Zhao & McDougall, 2008).

Similarly, Albrecht (2016) interviewed six Chinese students to examine the influences of Chinese culture on their willingness to approach instructors in American universities. The study found that the cultural obstacles, such as "language competence, intercultural sensitivity, and instructor presence" (p. 2) influence students' willingness to approach their online instructor. It also emphasized a few cultural differences between China and the United States that lead to the differences of students' online learning, including large-power distance and collectivism in China versus small-power distance and Individualism in the United States.

The same problem existing in technology integration in Chinese classrooms is also stressed by Li and Ni (2010) whose study indicated that teachers' technology use in China was more catered to teacher-centered purposes rather than student-centered activities. In China, when

technology is introduced into the classroom, it is mostly likely for facilitating the teachers to teach knowledge. Jing, Jixin, and Jing (2014) reviewed 121 Chinese doctoral dissertations on educational technology and found there was a growing interest in technology integration in higher education. The dissertations covered fields such as technology-assisted learning, technology integrations techniques, and instruction and design in different disciplines. However, among the 121 dissertations, the one that was cited most frequently is on knowledge-building in a virtual learning community. To some extent, this indicates that the major research interest in educational technology at Chinese higher education still focuses on using technology to facilitate with learning knowledge and content. Hence, Chinese student may not be used to the American educational settings where technology can be used for developing a variety of skills for students, rather than only knowledge learning.

The mixed research and data evidence discussed above suggests that international students' past experiences with technology and their cultural background influence their technology preference and utilization in a new country. Future research needs to explore Chinese students' perspectives on their technology experiences in China and the United States, as well as their technology preference in the American higher education setting.

Summary

This chapter reviewed the supporting theories and the extensive research that has been done in closely related fields. Previous studies indicate that American universities and colleges are devoted in providing support for international students, including offering ESL classes, increasing support services, and providing special workshops on academic, social, and cultural issues (IIE, 2016; Kyser et al., 2015; Pennycook, 2017; Sloan, Porter, Robins, & McCourt, 2014). However, there is a lack of attention in the literature to examine the following aspects.

Although a number of studies investigated international students' technology experience (Albrecht, 2016; Yoo & Huang, 2011; Zhadko, 2011), more studies are needed to analyze Chinese students' perspectives on their preference for technology and their technology self-efficacy in American universities. In addition, while there are a substantial number of studies in both countries on the application of educational technology in higher education and its benefits (Jin, 2013; Petherbridge & Chapman, 2007; Weaver et al, 2008; Zhongwen, 2014), there is a lack of comparison of the educational technology applications in higher education between China and the United States. The comparison can be valuable for researchers and educators to understand the technology-related challenges that Chinese students may experience. Lastly, regarding Chinese students' acculturation, previous studies (Wang, 2006; Yang et al., 2004; Yoo & Huang, 2011) investigated students' technology use in their daily life and acculturation to the society at large. There is a need for studies investigating the role of educational technology in students' acculturation into the school culture, which will amplify and clarify the interrelations between educational technology and students' acculturation in a host county.

A review of previous literature in the related field suggests that future studies need to be done to contribute to the literature with regard to aspects such as different educational technology applications at higher education level between China and United States, Chinese students' technology use and preference in American universities, Chinese students' technology self-efficacy and the role of educational technology in Chinese students' acculturation into the university culture. The next chapter will provide a detailed introduction of the methods that were employed in the current study for data collection and analysis.

CHAPTER III

METHODOLOGY

This chapter first presents the rationale for this phenomenological study. This chapter then shares the details of the interview approach and data collection. It further explained the analysis procedure.

Purpose and Research Questions

This study describes the educational technology experiences of ten Chinese international students studying in five American universities. It explores Chinese students' educational technology experiences and their perceptions of ways in which these technology experiences affect their postsecondary studies, daily living, and acculturation in America. While having the participants reflect upon their experiences with educational technology in both China and America, the following four research questions were explored:

1. What are the perceptions of Chinese students regarding educational technology in China and in the United States?
2. How do Chinese students describe their educational technology experiences in the United States?
3. How does educational technology use in America influence Chinese students' technology self-efficacy?
4. How do Chinese students describe the role of educational technology in their acculturation in the United States?

As the research questions focus on Chinese students' experiences with educational technology and their reflections and interpretations on these experiences, a phenomenological

study was deemed most appropriate as it focuses on the concreteness of the experience, as well as the consciousness on that experience (Moustakas 1994; Van Manen, 2016).

Phenomenology as a Research Methodology

The methodology for this study is qualitative in nature in that it starts with an interpretive, naturalistic approach to study the problem (Creswell, 2013; Denzin & Lincoln, 2011). The end product that a qualitative research creates "includes the voices of the participants, the reflexivity of the researcher, and a complex description and interpretation of the problem, and it extends the literature or signals a call for action" (Creswell, 2007, p. 37). More specifically, this study is phenomenological as it aims to explore Chinese international students' educational technology experiences in America and reveal their perceptions and interpretations of these experiences. The rationale for using a phenomenological method in this study rests with its purpose of exploring an "essence" through the phenomenon.

Phenomenology as a Philosophical Discipline

Phenomenology is "originally and essentially a philosophical discipline" (Van Manen, 2014, p. 22), which was largely developed by the German philosophers Edmund Husserl and Martin Heidegger. According to the Stanford Encyclopedia of Philosophy (2003), phenomenology studies conscious experience as experienced from the subjective or first person point of view. As Van Manen (2014) noted, phenomenology is primarily a "philosophic method for questioning, not a method for answering or discovering or drawing determinate conclusions" (p. 30). But in the process of questioning, it is possible to experience understandings and insights, which produces "cognitive and noncognitive or pathic perceptions of existentialities, giving us glances of the meaning of phenomena and events in their singularity" (Van Manen, 2014, p. 30). In other words, phenomenology is more a method of questioning than answering. It

explores meaning and essence behind the phenomena, rather than providing solutions or determining conclusions.

Phenomenology as a Research Method

Phenomenology also refers to a research method that has been practiced by scholars from different disciplines such as education, nursing, counseling, and psychology (Van Manen, 2014). Finlay (2009) stated that phenomenology is the study of the nature and meanings of phenomena. Doing a phenomenological research refers to "developing a pathos for the great texts, and, simultaneously, reflecting in a phenomenological manner on the living meanings of everyday experiences, phenomena, and events" (Van Manen, 2014, p. 23). A phenomenological approach "describes the common meaning for several individuals of their lived experiences of a concept or a phenomenon" (Creswell, 2013, p. 76). The purpose of phenomenology as a research method is to "reduce individual experiences with a phenomenon to a description of the universal essence" (Creswell, 2013, p. 76). It involves a deliberate and systematic investigation of phenomena with the overriding goal of describing, or giving structure to, the lived experience of the phenomenon of interest (Streubert & Carpenter, 2011), which makes the invisible visible (Kvale, 1996).

Phenomenological methodology was previously used to study international students' lives in foreign countries (Brooks, 2015; Burkholder, 2014; Mukthyala, 2013; Pan, 2014). For instance, phenomenological studies carried out by Pan (2014) and Zhang (2005) effectively revealed Chinese students' experiences in America and their consciousness on these experiences. Pan (2014) explored the lived experiences of seven Chinese international graduate students in the United States. The study described Chinese students' experiences of orienting to a new academic and social environment as well as struggling to live between two cultures and the study revealed Chinese students self-doubt and identity navigation during this process. Zhang (2005) studied

Chinese students' academic and social integration on both Chinese and American campuses and their reflections during this process with a phenomenological approach. The current study explores Chinese students' experiences as well as their interpretations of their technology experiences. Hence, the current study is designed based on hermeneutic phenomenology.

Hermeneutic Phenomenology as a Research Design

Hermeneutic phenomenology is a school of phenomenology that comes from the writings of Martin Heidegger, who focused on the subjective experience of individuals and groups. Hermeneutic phenomenology attempts to unveil the world as experienced by people through their life stories and allows individuals to better understand the world through their interpretations (Van Manen, 1990a). The research of hermeneutic phenomenology is oriented toward interpreting the "texts" of life and lived experiences (Van Manen, 1990a). It does not look for "truth" but for the participants' perceptions of "their truth"—their own experiences, as they perceive them (Sloan & Bowe, 2014). Van Manen (1990a) expanded on Heidegger's philosophy to operationalize a hermeneutic research based on the nature of lived experience. He suggested that the "essence" of the phenomenon was revealed though a "systematic attempt to uncover and describe the structures, the internal meaning structures, of lived experience" (Van Manen, 1990b, p. 10).

Although he did not approach phenomenological research with a set of rules, Van Manen's (1990a) phenomenological research activities provide the freedom and interactivity to explore the unique technology experience by Chinese international students. The current study explores the phenomenon of Chinese students' experiences with American educational technology and seeks the essence of this phenomenon, by letting students "perceive it, describe it, feel about it, judge it, remember it, make sense of it, and talk about it with others" (Patton,

2002, p. 104). The current study is interpretive-descriptive (hermeneutic) in nature in that it seeks for participants' descriptions as well as their perceptions on the meaning of their technology experiences in America.

This study of Chinese students' experiences relies upon in-depth interviews, which are consistent with Van Manen's hermeneutic phenomenological inquiry principles (Treadwell, 2015). In particular, Seidman's (2013) three-interview approach was employed to present participants' technology experiences, as well as their interpretations of the phenomenon. Seidman's (2013) three-interview approach was adopted in a number of hermeneutic phenomenological studies to explore the essence of phenomena in education (Armijo, 2016; Crandall, 2015; Treadwell, 2015; Zhang, 2005). This approach is in accordance with Van Manen's ideas on hermeneutic phenomenology, as it "focuses on the experiences of participants and the meaning they make of that experience" (Seidman, 2013, p. 16).

In-Depth Phenomenological Interviews: Seidman's Three-Interview Approach

Creswell (2013) concluded that in-depth and multiple interviews with participants are used to collect data most often. Patton (2002) suggested that "one must undertake in-depth interviews with people who have directly experienced the phenomenon of interest" to gather data on "lived experience" (p. 104). Through interviews, one is able to explore "how social experience is created and given meaning" (Denzin & Lincoln, 2005, p. 10). Moustakas (1994, cited in Creswell, 2003) stated that in qualitative research, a small group of participants can be studied through personal interviews and the information collected can be analyzed to determine if patterns and relationships exist within the group. For the sake of this study, Seidman's (2013) three in-depth phenomenological interviews were conducted to understand "the lived experience of other people and the meaning they make of that experience" (p. 9).

According to Seidman (2013), the three-interview approach allows both the interviewer and participant to explore the participant's experience, place it in context, and reflect on its meaning (p. 20). This approach involves three interviews with each one exploring deeper into the topic. The first interview establishes the context of the participants' experiences by letting the participants "tell as much as possible about themselves in the light of the topic up to the present time" (Seidman, 2013, p. 21). The second interview allows participants to reconstruct the details of their present lived experiences in the topic area of the study. The third interview focuses on the participants' reflections and understanding on the meanings of their experiences. The combination of exploring participant's past and describing their present experiences "establishes conditions for reflecting upon what they are now doing in their lives" (Seidman, 2013, p. 21). Therefore, the third interview can only be productive when the first two interviews establish a solid foundation.

In this study, conducting three interviews allowed more detailed stories of Chinese international students using educational technology in American universities to be shared with their American peers, instructors, and programs that work with international students. Thus, it will raise the awareness on Chinese students' technological needs and inform practice on providing necessary technological support to international students at both the teaching level and administrative levels.

Instrumentation

Although Van Manen (1990a) did not propose a method for phenomenology, he noted that procedures and techniques might help advance the lived experience inquiry (Van Manen, 1990a). By closely following Van Manen's (1990a) plan, a protocol consisting a list of guiding questions was designed for in-depth interviews by the researcher.

Designing Guiding Questions

The guiding questions can "help prepare the participants for the types of questions that might be asked and assist them in feeling at ease with the interview process" (Laverick, 2005, p. 96). The questions (Appendix A) were designed open-ended to allow participants' responses and meanings to lead the interviews (Van Manen, 1990a; Seidman, 2013). To ensure the validity, it was peer reviewed by the dissertation chairperson, committee members and a panel of professors who specialized in teaching foreign language and culture.

The guiding questions revealed investigators' areas of interest. However, during the interviews the researcher allowed questions to flow from the "researcher's concentrated listening, engaged interest in what was being said, and purpose in moving forward" (Seidman, 2013, p. 94). The investigator also offered interviewees freedom to expand on certain related topics. Therefore, the questions and topics discussed in each actual interview were different, which makes every interview unique.

Pilot Study for Interviews

Pilot studies are a crucial element of a good study design (Van Teijlingen & Hundley, 2010). For this study, a pilot study of the interview was conducted to ensure the reliability and validity of the guiding questions, as well as to practice the researcher's interview skills. The pilot study allows the researcher to test the interviewing platform (WeChat and Skype) and audio recording mechanism.

The researcher contacted two Chinese students at a Pennsylvania university. Both participants had the experiences of studying in Chinese and American universities for more than one year, which qualified them for the inclusion for the pilot study. They were graduate students in the field of Education and relied heavily on technology to fulfill their academic needs. In

addition, both of them were verbal and outgoing when it came to sharing ideas. After expressing an interest in participation after they received an invitation email (Appendix B), these students were invited to participate in the study. They indicated their willingness to do so by signing the Pilot Study Informed Consent form (Appendix C).

The investigator and each participant in the pilot study agreed upon the time and form for the three interviews (through WeChat). The three interviews were spaced from three days to a week apart, with each interview lasting for about 30 minutes. One day before each interview, the guiding questions for the next day were sent to the participants via email for them to review. Upon conclusion of the pilot study interviews, the researcher reviewed the results. Afterwards, the results were discussed with the dissertation committee chair, and it was agreed that the order of a few guiding questions should be rearranged. A few questions in the second interview were moved to the third interview for participants' better reflection. No other changes to the interview questions were made based on the pilot study results.

Participants

This qualitative study used criterion-based sampling and snowball sampling. These sampling strategies are common in qualitative inquiry (Creswell, 2013). Criterion-based sampling is an approach that ensures all cases meet some criterion for quality assurance (Creswell, 2013). Creswell (2013) viewed criterion sampling as an effective strategy "when all individuals studied represent people who have experienced the phenomenon" (p. 155). In the study, the criteria that all participants were required to meet were that 1) they had spent more than one semester in Chinese universities, and 2) they had spent more than one semester in American universities. The criteria were set to guarantee that participants had some educational

technology experiences in both settings based on which they could make reflections and comparisons.

After the criteria were determined, invitation emails (Appendix D) to participate in the study were sent to all the Chinese students (about 300) studying in a public university in western Pennsylvania (through the Chinese Students Association in the aforementioned university). The criteria for participation in the study were stated in the email to ensure that respondents to the email were eligible for the study. Two participants were selected from the volunteers who first responded to the email. An Informed Consent Form (Appendix E) was sent to selected participants by email. The participants signed the forms and sent them back to the investigator via mail or email.

Once participants from the aforementioned university in Pennsylvania were selected, criterion-based and snowball sampling was used to recruit participants from universities in other states. Snowball sampling "identifies cases of interest from people who know people who know what cases are information-rich" (Seidman, 2003, p. 158). The researcher requested the original participants to recommend the study to the potential participants they knew that met the sampling criteria. These original participants forwarded the invitation email to new, potential participants. Participants were selected among the volunteers who contacted the researcher and met the inclusion criterion. During this process, attention was paid to the location of their universities and involvement of participants across America was pursued.

Moustakas (1994, cited by Creswell, 2003) stated that a small group of participants could be studied in qualitative research to gather information. The researcher decided to involve ten participants fulfilled the saturation of data. Participants received invitations and returned signed consent forms. When all documentation was submitted, the series of interviews commenced.

The Setting

When the researcher does not have direct access to individuals, a telephone interview provides the best source of information (Creswell, 2013). Seidman (2013) supported that a phenomenological approach to interviewing by telephone or Skype can work, as long as the interviewer pays attention to communicative carefulness. The participants were located across the United States so it was not feasible to do the face-to-face interviews. Therefore, the researcher conducted the study of the Chinese international students from her home by audiotaping telephone interviews and online conferencing interviews (via WeChat, a Chinese social media app and Skype).

The interviewees resided in California (n = 1), Pennsylvania (n = 3), Connecticut (n = 2), Kansas (n = 2) and Texas (n = 2) at the time of interviews. The interviewees were requested to conduct the interviews at a place at their convenience that was quiet enough for the interview and audio recording, including their dorms, libraries, etc. The interviews were set up at a time mutually agreed upon by the interviewees and the interviewer.

Procedure for Data Collection

In the following section the procedure for data collection will be outlined. The procedure begins with bracketing personal assumptions, followed by participant selection, and the interview process.

Bracketing Researcher's Personal Assumptions

Clarifying researcher bias from the outset of the study is important so that the reader understands the researchers' position and any biases or assumptions that impact the inquiry (Merriam, 1988). Creswell (2013) also agreed that past experiences, prejudices, and orientations were likely to shape the interpretation. As a Chinese international student studying in America,

the researcher had the opportunity of experiencing educational technology in both Chinese and American universities. The researcher's Chinese cultural background helped her communicate with participants, share similar technology experiences, and interpret phenomenon from a shared cultural perspective. On the other hand, the researcher had been in America for more than five years at the time of interviews, which made her "outdated" in terms of technology experiences and assumptions on technology use in China. Therefore, throughout the study, the researcher constantly reflected on her technology experiences to bracket personal assumptions.

The researcher started with writing a few key points of her own technology experiences in China and America prior to the pilot study. During the interviews, the researcher kept a reflective journal to track her "initial impressions, questions, unresolved issues, and assumptions related to each participant" (Treadwell, 2015, p. 82). The researcher took memos and reflective notes from the interviews, such as cues from the researcher's experiences and emerging interpretations. The personal narrative and reflective journals were utilized in the final analysis of phenomenon in that they were regarded as relevant to emergent themes of the phenomenon of Chinese students' technology experiences in America.

Administration of Interviews

Seidman's model (2013) of in-depth, phenomenological interviewing involves three separate interviews. Before each interview series, the participant was sent an information sheet requesting of demographic information (Appendix F). The sheet needed to be filled out and emailed back to the researcher before the first interview. After scheduling the time of the first interviews with the participant via telephones and WeChat, the researcher sent the list of questions to the participant, together with a handout on the definition and examples of educational technology (Appendix G). The list of questions provided guidance on the topics that

would be discussed during interviews, which helped with participants' preparation for the interviews as well as comfort during the interviews. The handout on educational technology was necessary in that it was written to clarify possible confusion, misconceptions, or misunderstandings participants may have held regarding educational technology. It further informed participants of the topics that would be covered during the interviews.

The three audio interviews were spaced from two days to four days, depending on each participant's schedule. Each interview lasted for 30 to 70 minutes and was audiotaped for future transcription. During the interviews, the researcher and participants switched back and forth between Chinese and English. Seidman (2013) recommended that researchers and interviewees experiment in the ways of talking with each other to find the language that most authentically reflects their thinking.

All interviewees preferred to speak Chinese during the interviews because they viewed communicating in their native language as the easier and more comfortable way. When participants' authentic perceptions could be mostly revealed, the chances of mis-expressions and misunderstandings may be minimized. Moreover, developing an appropriate rapport between the researcher and participants became easier when they both spoke their native language.

While the procedures of Seidman's model were followed, a few modifications were made. According to Seidman (2013), the three interviews focus on three different aspects: "focused life history," "the details of experience", and "reflection on the meaning" (pp. 21-22). Seidman (2013) suggested the first interview aimed to reconstruct the interviewees' early experiences up to the present time. This study made a modification to the first interview by changing the focused life history to participants' technology use experiences up to the time they came to America. The first interview was still able to serve the purpose of establishing "the

context of the participant's experience" (Seidman, 2013, p. 21). The three interviews for this study centered on the following three areas:

> Interview 1: Participants' Technology Use History in China. This interview established the context of the participants' experiences using technology till they came to America.
>
> Interview 2: Participants' Contemporary Technology Use in America. This interview concentrated on the concrete details of participants' present lived experiences of technology use in America.
>
> Interview 3: Reflection on the Meaning. During this interview, participants reflected on the meaning of their technology experiences.

The second modification to Seidman's approach is that the researcher provided a list of guiding questions to the participants before the interview. Seidman (2013) maintains that an interview guide be used cautiously. The purpose of using guiding questions is to help participants with preparation for the interviews. It would help the participants feel less intimidated with the interview process (Laverick, 2005). However, the guiding questions were used with caution to avoid manipulating participants' responses.

The last modification is the change to the length and spacing of interviews. Seidman (2013) suggested a 90-minute format for each of the three interviews, with each interview spaced from three days to a week apart. The interviews, for this study, lasted approximately 30 minutes. This change was made to make students feel less overwhelmed by the large commitment of time. The spacing of interviews was reduced to two to four days to accommodate participants' preferences. When it came to scheduling the time of interviews, most participants preferred a shorter period of time for all the interviews due to their overloaded assignments, class

preparation, quiz/mid-term preparation, part-time jobs, travel plans, and other commitments. The investigator respected the participants' schedule to avoid their discouragement by a strict interview timeline.

Data Analysis

According to Van Manen (1990a), data analysis is a phenomenological reflection, which is less structured. The underlying idea of the reflection is to grasp the essential meaning of something (Creswell, 2013). The process generally involves attending to the entire text, looking for statements or phrases, and examining every sentence. Then, the data are analyzed for themes and an explicit structure of the meaning of the lived experience is presented (Van Manen, 1990).

Similarly, Seidman's (2013) explains the data analysis procedures of a phenomenological study: studying the transcriptions, marking what is of interest in the text (coding), searching for connecting threads and patterns (themes), and interpreting the material. The current study employed Van Manen (1990a) and Seidman's (2013) phenomenological research guidelines to analyze the data. Doing so provided greater insights into the nature of lived experiences of Chinese students' technology experiences in America. For the sake of the study, the researcher made modifications by adding one additional step to the procedure: translating Chinese transcripts into English.

For a deep immersion in the phenomenological data, the researcher personally transcribed all interviews. After the transcription was done following the third interview, the transcripts were returned to the participants to proofread for accuracy. Two participants returned the transcripts with minor modifications.

The process for analyzing data included:

- Reviewing the transcripts several times to gain a sense of the whole content

- Highlighting significant statements and phrases pertaining to the study
- Translating the significant statements and phrases
- Organizing the statements into meanings/categories and coding each category
- Clustering the formulated meanings into themes
- Identifying the fundamental structure of the phenomenon

The last two steps is the interpretation phase of data analysis. By making sense of the themes and the fundamental structure of the phenomenon, the interpretation arrives at the ultimate lessons (Creswell, 2007). According to Van Manen (1990a), phenomenological writing may lead to new insights on the phenomenon. The description of results in Chapter IV in conjunction with interpretation of findings in Chapter V will reveal the essence of the lived technology experiences by Chinese international students in America.

Trustworthiness

Creswell (2013) viewed validation of a study as a distinct strength of qualitative research. This study obtained its methodological rigor through the application of a few validation strategies (Creswell, 2013).

First, the study used member checking to make sure the translation and description authentically revealed participants' experiences. Member checking is considered as "the most critical technique for establishing credibility" (Lincoln & Guba, 1985, p. 314, cited in Creswell, 2013). In this study, the transcriptions were returned to the participants to understand their views on the credibility. Any alterations were made by participants' feedback and additional information was integrated to the final description of the phenomenon.

Secondly, the researcher kept a reflective mindset throughout the study (Creswell, 2013). During the interviews, the researcher kept an open attitude (Finlay, 2009) and mostly posed

open-ended questions to avoid the dialogues being led by the researcher's pre-assumptions and bias. During the process of data analysis, the researcher moved back and forth between data collection and analysis in developing understanding and achieving saturation (Tufford & Newman, 2010).

Lastly, two other Chinese researchers, who were both advanced in Chinese and English, peer reviewed all the transcriptions (including the translated transcriptions), emerging meanings, and codes. The peer review provided an external check of the research process (Creswell, 2013), which improved the validity of the study.

Summary

Chapter III described the methodology of this phenomenological study of Chinese international students' technology experiences in American universities. The rationale for using a phenomenological method was provided along with the data collection process. Details about the instrumentation, participants, and setting were explained. The study adopted Seidman's (2013) three-interview model to collect data and followed Creswell (2013) and Seidman's (2013) suggestion on conducting data analysis. The results of the study are presented in Chapter IV.

CHAPTER IV

RESULTS

This chapter reports the results of this phenomenological study of Chinese students' educational technology experiences in American universities. Data was collected from ten participants by using a series of three interviews (Seidman, 1998). The following questions were explored:

1. What are the perceptions of Chinese students regarding educational technology in China and in the United States?

2. How do Chinese students describe their educational technology experiences in the United States?

3. How does the educational technology use in America influence Chinese students' technology self-efficacy?

4. How do Chinese students describe the role of educational technology in their acculturation in the United States?

The final result represents a composite document of emergent themes and participants' experiences to create an "exhaustive description of the phenomenon" (Creswell, 2007, p. 160; Van Manen, 1990). The approach in this study was to put the results (emergent themes and participants' experiences) around the research questions (Gall, Gall, & Borg, 2003). Themes are organized and presented after each questions. The data will be presented in the way that "categorized, thematic excerpts speak for themselves" (Seidman, 2013, p. 131). In many sections, participants' elaboration upon the emergent themes is presented. For the "identified passages that are important but the category in which they fall seems undefined" (Seidman,

2013, p. 131), the information will be derived and put in discussion and suggestions for future research, as suggested by Seidman (2013).

The result will be presented by deleting any characters of oral speech that are not present in the written version of what participants said (Seidman, 2013). In addition, the participants were given pseudonyms to maintain confidentiality.

Demographic Information of Participants

All the participants were from the national public universities located in different parts of China. At the time of the interviews, the participants were studying in national and regional public universities in America. Some of them continued with their graduate study in their previous majors while some changed their fields. Table 1 shared the demographic information of participants.

As indicated in Table 1, at the time of interviews, all the participants had spent more than one year in both Chinese and American universities. Their majors include Accounting (n = 5), Business Analytic and Project Management (n = 1), Financial Risk Management (n = 1), Psychology (n = 1), Nursing (n = 1), and TESOL (n = 1). Four participants were in undergraduate programs and six were in graduate programs.

Table 1

Demographic Information of Participants

Name	Gender/ Age	Location of their American Universities	Time in American university	Major/ Degree	Time in Chinese University/ Major
Zheng	F/24	Pennsylvania	4 years	TESOL/ Master	2 years; English
Lin	F/20	Pennsylvania	2 years	Psychology/ Bachelor	2 years; Applied Psychology
Chen	M/25	Connecticut	2 years	Financial Risk Management/ Master	4 years; Business Management
Yuan	M/23	Connecticut	2 years and a half	Business Analytics and Project Management/ Master	3 years; Accounting
Man	F/23	Texas	1 year 3 months	Accounting/Master	4 years; Financial Management
Shi	M/25	Texas	1 year and a half	Accounting/Master	5 Years; Accounting
Hu	F/22	California	1 year	Accounting/Master	4 years; Business English
Yue	F/23	California	3 years	Accounting/ Master	1 year; Accounting
Gu	F/25	Kansas	2 years and a half	Nursing/ Bachelor	4 years; International Politics
Na	F/23	Kansas	3 years	Accounting/Bachelor	1 year; Language School

Chinese Students' Perceptions on American and Chinese Educational Technology

The following section reports the data to answer the first research question: What are the perceptions of Chinese students regarding educational technology in China and the United States?

Results in the following sections show Chinese students' descriptions of the four aspects of educational technology used in China and America: hardware, software, technological support, and beliefs/preferences and practices. Due to the fact that participants integrated their educational technology beliefs and practices in describing hardware, software and technological support, their perceptions on beliefs and practices will not be shared separately in order to avoid repetition of data presentation. Participants' descriptions will be presented in tables and synthesized paragraphs. This decision was made because participants listed several technologies and described similar perceptions. Thus, the synthesis will better conclude the results and compare the data.

Similarities and Differences in Hardware

Participants indicated that they were able to get access to similar hardware for educational purposes in both countries. Table 2 shows more similarities than differences between the two countries in terms of Educational technology hardware access.

Table 2

Students Using Hardware as Educational Technology in China and America

Hardware	Number of Participants Who Used it in China	Number of Participants Who Used it in America
Laptop	10	10
Computer	10	10
Projector	10	10
Smartphone	6	10
iPad	1	3
Printer	2	7
Scanner	0	5
Clicker	0	3
Smartboard	0	4

All the participants had access to computers and projectors in classrooms and owned personal laptops in both countries. The hardware served the same purpose of facilitating teaching and learning.

Participants identified a number of new hardware offered in their American universities. They noted that clickers and Smartboards were not available in their Chinese universities. However, they felt these devices were very easy to learn and use. Students also found computers were accessible around American campuses. Public computers can be found in the library, dormitories, and hallways of some administrative departments. The public computers in American universities were reported to be newer and more updated than those in their Chinese universities. Lastly, most participants included smartphones as Educational technology hardware after they came to America. They did not categorize smartphones as a commonly used Educational technology hardware in China because they used their phones simply for personal communication and entertainment.

Similarities and Differences in Software

In the present study, educational technology software includes the specific software installed on computers and personal devices, as well as online platforms and resources. In addition, it includes the practices of using software for educational purposes. Compared with hardware differences, participants described more similarities and differences in the use of Educational technology software.

Similarities

Participants described a variety of similar software and their similar functions in education. They confirmed that similarities in technology made it easier for Chinese students to start university life in America.

Similar educational technology software and platforms. Table 3 presents the platforms that were used in both Chinese and American universities. These software and technology platforms include Microsoft Office (Word, PowerPoint, and Excel), library online database, SPSS; web 2.0 tools such as emails, blogs, and online resources (e.g. videos, news, articles, etc.). These software and platforms also played similar roles in facilitating participants with achieving academic goals, such as finishing assignments on LMS, searching for information and communicating with professors and classmates with web 2.0 tools, and reading and downloading articles and journals from the library's online database.

Table 3

Frequently Used Educational Technology Software in China and America: Similarities and Differences

Software	Educational Technology Software Used in China (number of participants)	Educational Technology Software Used in America (number of participants)
Microsoft software (Word, PowerPoint, Excel, etc.)	10	10
Online videos	10	10
Email	10	10
WeChat	10	10
Baidu	10	6
QQ	8	8
University Wi-Fi	7	10
University Websites	6	10
QQ Email	4	4
Library Online Database	3	6
LMS (Blackboard, D2L, Moodle, etc.)	3	10
Web Portal	3	10

Facebook	2	10
Google	1	10
Online Free Courses (e.g. Moore, Coursera)	1	5
Online Dictionary and Grammar Check	1	2
Gmail	0	10
Major-related Software (e.g. Webx, SAS, Bloomberg, etc.)	0	7
Online Quiz	0	6
Virtual Storage	0	5
Google Drive	0	5
Google Doc	0	5
Dropbox	0	4
WhatsApp	0	4
Google Calendar	0	3
Twitter	0	3
Turnitin	0	3
LinkedIn	0	3
Prezi	0	3
Skype	0	3
Webinar/Online Workshops/Online Presentations	0	3
Online Writing Center	0	2
Wikipedia	0	2
Google Scholar	0	2
Interloan Library	0	2
GroupMe	0	1
Google Hangout	0	1
Twine	0	1
University Application	0	1

Similarities in professors' choice of software. All the participants elaborated that some software are used by both Chinese and American professors, such as PowerPoint slides, word document, online videos, pictures, and articles. Professors communicated with students via email or social media. Few American and Chinese professors were reported as being "enthusiastic" about experimenting with technology integration. However, participants were satisfied with professors using the basic functions of these technologies, since the technologies helped fulfill teaching and learning purposes.

Differences

Participants described differences in the aspects, access, and functions of software platforms. A large part of Table 3 presents the different educational technology software mentioned by the participants that were used on a regular basis in China and America.

In comparison, participants were able to get access to more Educational technology in American universities. More specifically, participants described the following differences in Chinese and American Educational technology software access and usage. The themes that emerged through the analysis and comparison of data are: a) more new technologies are available in American universities; b) technology is more extensively integrated in American universities; and c) web 2.0 tools are accessed and used differently in China and America. The following section synthesizes participants' elaboration to achieve concise and clear data presentation.

More access to new and updated technologies in American universities. Participants described new educational software and platforms that they had rarely used or heard of before they came to America. Two participants commented on virtual storage as new technologies, five participants described major-specialized software as advanced and new, and four participants described using new features of some previously known/used software.

Virtual storage. Virtual storage refers to the personal data storage area (e.g. P drive or H drive) on the university network. Lin described her experience of using university-based virtual storage as "brand new." She explained:

> Before I came here, P drive is something I never heard of. One time my American professor gave us a handout explaining how to install P drive and download learning resources he shared on the P drive. In China we need to take a flash drive with us if we want to get a copy of PowerPoint slides from the professor.

Similarly, Zheng specified how H drive helped her by "saving a backup copy" of her final project:

> Back in China I used to carry a flash drive with me everywhere I went. But I began to rely on H drive after I came here because I can get access to it on and off campus. One time I accidentally deleted my final project permanently. Thanks to the H drive, I was able to track back the previous drafts.

Major-specialized software. Students from the majors of Business, Accounting, and Technology Information were offered to learn some advanced software in America. Chen, a student majored in Financial Risk Management, was able to get access to financial software such as Bloomberg. He could "check real-time stock index, simulate stock transactions and get news from every major news outlet in the business world under Bloomberg." Na further confirmed the benefits of using Bloomberg to "trace a company's income resources" when she was enrolled in a Finance class.

Yuan, a student studying Technology Information, described how software was shared freely via a virtual desktop (Skybox) set up in his university:

> Each student has his/her login ID. Once we log in, we have some business and accounting software on the desktop such as SAS. Every student from the Accounting major can have access to this desktop and actually we have one more virtual desktop (OPIM) for students majored in Information Technology. On that virtual desktop, students can find more software specialized in statistical presentation and analysis. It is more powerful than the regular virtual desktop. All these software are free for us thanks to the virtual desktop.

Like Chen and Yuan, Man and Shi were also able to get access to business software such as SAP and ERS. They explained that software as such was not offered to students for free in China.

New features and uses of old technology. Students described how they discovered new features for software that they had already used in China. Yue explained her experience of exploring new functions of Excel. "As an accounting major, I learned a lot of new functions of Excel after I came here. Even though I learned the basic functions of Excel in China, I never knew that it could be so powerful until I studied here." Zheng explored new functions of Microsoft Word: "In China we just type our assignment in a Word document. Nobody cared about the fancy things that Word can do. But after I came here I found many classmates were using Word to design flyers and posters."

Gu explained the difference of using Microsoft PowerPoint in China and America:

> My Chinese professors put words and pictures in PowerPoint slides while my American professors sometimes inserted audio files which provided more in-depth explanation. I had a professor who used flipped classrooms. In the PowerPoint slides he summarized a three-hour lecture into a twenty-minute presentation, where we could find key points,

audio and video documents that help us with understanding. For instance, in a class on assessing patients, my professor inserted a video clip assessing his son as a demonstration. That was more hands-on and practically helpful. We can always go back to the PowerPoint slides after class and recall the key concepts vividly.

Many participants reported cellphone plans working differently in America. As Man stated, unlike the pay-as-you-go style in China, most cellphone plans in America worked under contracts. It took her a while to figure out which company and what plan best fit her needs.

Extensive integration of technology in American higher education. All the participants, at some point of the interviews, pointed out that educational technology use in America was more "advanced" than that in China because technology had been integrated into every aspect of learning in American universities. Table 4 presents participants' narratives on the extensive integration of educational technology in American universities from various aspects.

Table 4

Descriptions on Extensive Integration of Technology in America

Participants	Descriptions on Extensive Integration of Technology
Zheng	"Educational technology is more powerful in facilitating with study in America. From registering for a class to borrowing a book, technology covered almost every aspect of my study. For instance, my class shared a lot of resources and communicated frequently after class."
Gu	"I feel Educational technology is everywhere in my study here. For every class I took, we were required to have computer access to finish certain learning tasks. LMS, online information and ebooks play an important part in my study." "Professors use technology more frequently than Chinese professors. In China, we can survive most classes without using Educational technology."
Man	"The biggest difference between Chinese and American educational technology is the extensive integration of educational technology in after-class learning in American universities."
Yue	"My American professors used technology more frequently than my Chinese professors." "I could write most of my assignments with pen and paper in China but in America I could go paperless." "I need to remember to check emails

	constantly because most communication between university/department and students are via emails."
Na	"Educational technology is advanced in American universities because it is widely used and has made my study and life more convenient in America." "Technology is more accessible here. For instance, I can use the public computers around the campus to log into my D2L account."
Shi	"Educational technology in America fully supports education. It is more advanced and humane." "My American professors used more updated and advanced technologies but most technologies were very easy to use and learn."
Chen	"To me, educational technology in American universities is more advanced since it is penetrated into every segment of my university life. We use technology in and outside class. For instance, Students in my major need university cards to enter our labs and classrooms. For every classroom, there is a screen beside the door indicating the class schedule of that day. The card can also be used in the dining hall and library."
Hu	"The extensive use of educational technology in American universities had brought great convenience to my study and personal life."
Yuan	"There is so much to learn about educational technology here. I would be left out if I do not keep myself updated with new technologies because they are closely connected with my study."
Lin	"Technology use is more advanced in America because technologies are easier to learn and more widely used."

While all the participants confirmed the essential role technology played in their American campus life, some further expressed mixed feelings towards extensive technology integration. Man stated that she was more serious with technology in America because it had become a "big part of her university life," and "I need to force myself to form a habit of using technology regularly for learning purposes."

Zheng expressed her concerns about an over-reliance on technology in education:

> I rely on technology for learning purposes, which can be a little risky because technology can cause problems. Once I was disconnected with the Wi-Fi in the library during an online quiz. I spent some time fixing it and had to finish the quiz within a short period of time…It is also vital for us to check email constantly because there may be important

notifications such as class change and deadlines for assignments. It can bring us trouble if we miss the information.

On the contrary, Yuan stated his motivation for learning new educational technology in America, “After I came here, I learned more educational technology, especially some advanced software related to my major. I began to realize the gap between Chinese and American educational technology development. I feel more motivated to learn new technologies and proficiently use them to facilitate with my learning.”

Overall, participants in the study pointed out that educational technology in America played a more important role in learning and teaching than that in China. They stated that educational technology was more extensively used in American universities. Hence, they treated educational technology more seriously for learning and communication purposes in America than in China.

Differences in Web 2.0 tools. Even though all participants used social media and other Web 2.0 Tools, the platforms were different in China and America. As mentioned earlier, Chinese Internet censorship led to a wide variety of Internet laws and administrative regulations, which blocked many foreign Web 2.0 tools. The American social media platforms such as Google, WhatsApp, Twitter/Facebook, Skype, and Gmail have their “counterparts” in China: Baidu, WeChat, Weibo, QQ, and QQ email. According to the interviews, most participants had never used American social media and many other Web 2.0 tools (e.g. Facebook or Gmail) until they came to America. However, since Chinese and American Web 2.0 tools have similar features and functions, participants quickly learned how to use the American Web 2.0 tools.

In addition, participants described the different degrees that Web 2.0 tools were integrated as educational technology in China and America. Many participants mentioned

Table 5

Web 2.0 Tools as Educational Technology in America

Web 2.0 Tools	Students Using Web 2.0 Tools for Educational Purposes
Email	10
Online videos	10
Facebook	10
Google	10
WeChat	10
Gmail	10
Library Online Database	6
Online Quiz	6
Online Free Courses (e.g. Moore, Coursera)	5
Google Drive	5
Google Doc	5
Dropbox	4
WhatsApp	4
Google Calendar	3
Twitter	3
Turnitin	3
LinkedIn	3
Prezi	3
Skype	3
Webinar/Online Workshops/Online Presentations	3
Online Dictionary and Grammar Check	2
Wikipedia	2
Google Scholar	2
GroupMe	1
Google Hangout	1
Twine	1

inadequate awareness of some American professors and classmates on the differences in social media and Web 2.0 tools between the two countries.

Web 2.0 tools as educational technology. According to most participants, they used social media and other Web 2.0 tools in China mainly as a form of social connection and personal entertainment. A few participants described using web 2.0 tools for learning purposes. The most common experiences provided by the participants came in the form of receiving information from their teacher on assignments and class updates on QQ and WeChat. Therefore, in the interviews on educational technology in China, few participants considered Web 2.0 tools, especially social media, as a major educational technology.

On the contrary, in the interviews on educational technology in America, participants described a number of experiences of using social media and other Web 2.0 tools for learning. Table 5 is a list of the platforms participants used for academic purposes.

All the participants reported their experiences of using Web 2.0 tools for learning purposes in America. While platforms may vary, the participants all view Web 2.0 tools as educational technology that was used in a more "versatile" way in America. Web 2.0 tools were deemed to be "vital" in participants' academic lives.

People's awareness on the difference in Web 2.0 tools. Participants learned how to use American Web 2.0 tools from their professors and classmates. They described setting up their first Facebook, Gmail, or LinkedIn accounts after they came to America. In terms of people's awareness on the different social media platforms in China and America, participants claimed that most the professors and classmates in America did not know the difference. Five participants described their experiences in Table 6.

Table 6

Participants' Descriptions on People's Awareness on the Differences in Web 2.0 Tools

Participant	Descriptions
Lin	"When I told my American classmates I did not have a Facebook account, they were surprised and suggested using email to communicate. Later I registered a Facebook account. It was pretty simple."
Chen	"Our professor did not know Facebook was not available in China until later in the semester. I could tell that he took it for granted that everybody was on Facebook. But he did not enforce any platform for our group projects."
Na	"One professor recommended Google Drive and Dropbox for collaboration on projects. He and my classmates were a little surprised about my ignorance of these two platforms. Then they just quickly showed me how to use them."
Shi	"In my first Accounting Communication class, the professor asked us to fill out a form on which we could share our LinkedIn usernames with her. It is such an essential app that every business school student should have. But before I came here, I seldom used LinkedIn. So I registered an account in two minutes on my cellphone."
Yue	"When my American classmates suggested Google Doc for collaboration, I told them I had never used it. They patiently taught me how to use it and what functions it has."

Participants observed that few American professors and students were aware of differences in accessible Web 2.0 tools between China and America, they were willing to offer help to participants once the Americans learned about the differences. Participants did not describe any distinct obstacles in learning and communication caused by their ignorance of American Web 2.0 tools.

Difference in university websites. All the participants described a few differences between what Chinese and American university websites could offer. Participants stated that American universities' websites were more open with resources and information, more interactive and easier to use, and student-centered less authoritative than those in China. The statements were exemplified by participants' comparison on university webpages, university

emails, university web portals, and Learning Management Systems (LMS).

Less authoritative, more informative websites. Students reported that university's websites had brought more convenience to their lives in America. They could find valuable information and resources on the American university webpages. On the contrary, participants used their Chinese university websites less often because the websites were either "political" or uninformative and "unrelated" to students' campus life. Table 7 presents eight participants' views on Chinese and American university websites.

Table 7

Participants' Opinions on Chinese and American University Websites

Participants	Description on Chinese university's webpage being political and irrelevant	Descriptions on American university's webpage being informational and helpful
Yue	"I did not browse my university's website very often in China because I did not feel related to it. It did not offer much information that I needed, not to mention university account."	"It took me about a month to get used to the university website here. It was shocking for me to find so much valuable information on the university website here."
Gu	"When I was in China, I had no desire to browse my university's website because it was too political."	"I rely on my American university's website to get information and get my work done."
Man	"The official website of my Chinese university is more political and administration-focused. We could see news about the president and conferences, as well as current programs in different colleges and departments. I could not do much on the website."	"My American university's website offers information that covers almost everything about our university life, from the schedule of school bus to available books in the library. I am able to do more things once I log into my student account."
Yuan	"In China, we did not have access to free technology downloads from the university website."	"Here, I am able to download a lot of software for free. I can use university's P drive and H drive to store and download information… There are also a great amount of information on our university

		website. We can have a lot of our questions answered just by browsing the website."
Zheng	"My Chinese university's website provided information on universities, departments, programs and courses. Usually there were newsletters stating university's outlook and development."	"Here in America, we have a lot more information and resources on our university website that I can easily locate. For instance, I use D2L and university email every day; I can easily find contact information of every student, professor and staff in my university; I always log into university's library online database to download research articles; I used online appointment at the career center to schedule appointments to consult on career opportunities; and I can download important software and files from the department's webpage."
Chen	"My Chinese university's website was slow and unrelated to students."	N/A

Similarly, the rest of participants rarely used their Chinese university websites because they found them "unrelated" to their academic lives. Therefore, they did not give detailed descriptions on their Chinese university websites.

Web Portals. The web portal is another technology that differs in Chinese and American educational technology. All the participants mentioned that web portals in their universities were powerful and played an important part in students' learning. While some participants had the experiences of using web portals in their Chinese universities, many participants had never used web portals before.

According to the three participants who had web portals in their Chinese universities, they were only able to set up student profiles, browse and register for courses, and check grades on web portals. Hu gave an example on how the online registration proceeded differently on her Chinese web portal, "if a class had a capacity of 30 students but 50 students registered, the

teacher would decide who could take that class in China and manually enrolled the students. But here, as long as you have the pin number, you can register for a class that still has spots for enrollment." Chen concluded that web portal in his Chinese university only offered "one-way communication" because it did not support teacher-student interaction. On the contrary, web portals in America were more interactive and student-centered. He described web portals as the "core technology" that supported his everyday study.

Due to the fact that they did not have the experience of using web portals in China, a few interviewees spent some time getting accustomed to the system. Shi believed the Galaxy system that supported his university web portal was "complicated to learn at first." But after a few days of practice, he found the web portal easy to use. Web portals were gradually integrated in his life as an everyday essential technology, from registering for classes to paying for parking tolls.

Yue also spent some time to get used to the web portal: "It was shocking to see so much information once I logged in my student account such as viewing my courses, checking my registration status, and paying tuition. It was really powerful."

University emails. Few participants reported having a university email in China. Most of the participants occasionally used their personal emails for learning purposes. On the contrary, participants were assigned with a university email at the beginning of their study in America. Later the university emails became "essential" in their studies in America. All participants stated the importance of forming a habit of checking emails on a daily basis because emails served as the mostly used platform for communication between students and professors, classmates, and the university.

Some participants regarded email as an easier and more direct way to communicate with their professors and classmates. Yue noted that in China students had a head teacher as the

coordinator connecting her class and the professors, department, and the university. But in America, she could "reach out to professors, classmates, and anybody in the university" by searching for their emails on the university's website. Yuan also stated that email is the best way to reach out for his professors because they checked their emails all the time. He added that it was important for Chinese students to "realize the importance of checking university email every day," or they may miss very important information from the professors or the university.

On a similar note, Chen felt students in America rely heavily on emails for communication. The university email allows students to reach out to a person in his university by identifying his/her email with his/her name. Chen further confirmed that the essential thing Chinese students need to learn from the start in America was to form a habit of using emails to formally and informally communicate with both professors and classmates.

Some participants confirmed the close connection that emails helped build up between the students and administrative departments in the university. Lin described the importance of university emails:

> Aside from communicating with professors and classmates, I enjoyed using my university email as a medium to receive university and department newsletters. For instance, I got to know the coming events or activities in different departments from email. The International Student Office sent us reminders for things such as I20 form renewal or OPT application. I feel a close connection with the university via emails.

Shi learned very important information from the emails sent by the Office of International Education. The information included international students' eligible visa status, policy change in immigration, and the latest information on international students' job opportunities.

Gu specified her view on the different roles emails played in Chinese and American universities. She concluded, "I feel in China we were connected as a group whereas here we were connected by email as an individual in a larger community." Gu mentioned getting emails of emergency notifications on power shutdowns or class cancellations due to bad weather and receiving university newsletters on university events, club offerings, and workshops.

All the participants regarded university emails as an important media to receive and send information. Emails have become essential tools for them to keep updated and connected with their universities. Most participants mentioned the importance of forming a habit of checking emails regularly in America because most Chinese students did not use emails as major tools for learning purposes in China.

Learning Management System. Learning Management System (LMS) is another technology that participants described differences in use between China and America. Of all the participants, five participants had LMS in their Chinese universities. They shared their views on the differences in LMS access and use.

Gu shared that LMS in her Chinese university did not support as many features as that in America. Her Chinese professors' usage of LMS was therefore limited to posting final grades and class notifications. In her words, LMS was "superficially used" in education in China. In America, on the contrary, LMS "penetrates into education." From posting talking points to organizing class online discussion, professors and students used it almost every day.

Yue compared LMS usage by professors in China and America. She mentioned that most of her professors in America would upload PowerPoint slides and course-related materials to Blackboard. But in China, her professors did not use LMS a great deal: "If we wanted a copy of the slides, we had to bring our own flash drive and copy them after class. Maybe they are

conservative in sharing PowerPoint slides." Yue's American professor also made many posts on Blackboard, such as adding deadlines for assignments, and posting exams and grades. Professors shared their PowerPoints, articles, and useful links on Blackboard.

Similarly, Lin mentioned that Chinese professors used LMS as a place for checking students' assignments. But in America, LMS offered more features such as class updates and online discussion forum.

Man explained that she used Blackboard for class almost every day in America. Most of her professors posted announcements, class updates, and other class information on Blackboard. She installed a Blackboard app on her smartphone to receive feeds from Blackboard so that she would not miss any important updates about classes. But in her Chinese university, LMS was just a place for course information and professors' assignments.

Zheng summarized the LMS differences between her Chinese and American universities: "To put it simple, I cannot survive without D2L in my American university, but I can live without D2L in China." She used many features of D2L in America including checking feedback and grades, posting discussions and reflections, and uploading assignments. She highlighted that D2L helped her mingle with the professor and other students on the discussion board.

Shi, Na, Chen, Yue, and Hu had never used LMS in China. However, in America they used LMS on a daily basis. They described many features of LMS that their professors used in and outside of class. For instance, professors posted class updates, emergency notifications, course contents, and sample exams. Students could browse course content, upload assignments, participate in group discussions, post reflections, and provide feedback to classmates. In addition, Hu and Yue believed American professors were more active and skillful in using LMS.

***Differences in professors using educational technology*.** Participants depicted four major aspects where they found differences between Chinese and American professors in terms of educational technology: American professors used educational technology more frequently and with a greater variety for different teaching purposes. Some participants further explained their thoughts on the reasons for professors' difference in using educational technology.

Man. Man stated that her American professors relied more on technology in and outside class. She believed that technology was used more frequently by her American professors and had covered most parts of their studies. She stated, "My professors used different kinds of websites or software to facilitate with teaching... After class, I still had a lot of communications via technology with my professors and classmates."

Zheng. Zheng mentioned that American professors were more used to using technology for communication. Her American professors constantly checked their emails and were able to provide prompt feedback to students. In China, many of her professors were not willing to share their personal emails with students. Those professors who did could not always reply to students' emails in time.

Na. Na described her American professors as "knowledgeable and skilled" in using educational technology. In contrast, some of her Chinese professors needed to turn to technology support from the students in class.

Shi. Shi noted that his American professors demonstrated high competency when using a better variety of technology in teaching and learning. For instance, he constantly received emails on class updates from different professors. One professor invited several university alumni to make distant presentations as guest speakers, who at the time worked at the senior level in big business companies. The professor recorded all the presentations so students could go back to the

presentations again via the university's virtual drive. Shi described the experience as "impressive" and the information he received as "invaluable." In addition, Shi believed most professors were generous in sharing online resources. The professors he followed on Twitter actively shared recommendations on important social media platforms (such as LinkedIn to build up social networks) and websites that facilitate with learning, such as Accounting Coach and Investopedia. The online platforms and resources shared by the professors were important to Shi in that, as an Accounting major, he needed to update his knowledge constantly and expand his social network.

Yuan. Yuan also pointed out American professors used a variety of educational technology platforms for teaching and communication including university email, Google Drive, university virtual storage, and Qualtrics. He had a few American professors who liked to invite students to workshops via Google Calendar.

Chen. Chen stated that American professors had better knowledge of available educational technology tools. American professors frequently and widely used educational technology. Chen further added that American professors held a more positive attitude toward using technology in class. On the contrary, some of his Chinese professors were not willing to use technology by themselves or the students in their classes.

Gu. Gu shared that American professors were able to use "advanced features" of certain technologies:

> I feel even though some technologies are the same in America and China, professors used them a little bit differently. Take PowerPoint slides as an example. In China, the professors' slides were all about content. There were a lot of words and graphs involved. But here (in America), I had professors who inserted audio and videos to help us better

understand content. Sometimes, my professors recorded their own explanations and inserted them into the slides. Last semester I was enrolled in a medication class. After each class, the professor recorded a 20-minute video summarizing the key points and uploaded it to Blackboard. As a nursing major, I need to memorize a great amount of terms and skills. His videos greatly helped me with understanding and memorization. Whenever I want to review a class, I would click on the video and watch it again.

Yue. Yue confirmed that most of her American professors used technology more often than her Chinese professors. She mentioned using email to communicate with her American professors almost every day. She further compared her experiences in two similar Business classes with two different professors in China and America:

> I had Business classes in both China and America. In my Business Law class in America, my professor always played a short video on YouTube at the beginning of the class. Each video was a lawsuit case for us to discuss and figure out solutions. Once he showed us a documentary on a lawyer accepting briberies and who finally became imprisoned. I still remember that documentary and some of the cases today. My Chinese professor, on the other hand, usually showed us some cases on handouts or PowerPoint slides. He barely used any videos or other technology to enhance our understanding. I think probably he considered playing videos for students as a waste of time or because he had the illusion that students were able to receive and memorize more information from his lecture.

Yue further mentioned a few websites and online resources that her American professor used to facilitate teaching, such as an accounting website for grading and conducting online examinations. In comparison, some of her Chinese professors did not even share their PowerPoint slides with students. However, Yue pointed out that as more young Chinese

professors were recruited into Chinese higher education, the gap in educational technology usage between Chinese and American professors might shrink.

Lin. Lin noted that compared with Chinese professors, American professors used emails more often to keep students updated. They also used more technology tools than Chinese professors for sharing resources. For instance, her professor always attached links to online psychological questionnaires and quizzes in the assignments or on the P drive. On the contrary, many of her Chinese professors relied on very limited technology tools to teach (such as Microsoft Office) and were reluctant to share their technology resources such as PowerPoint slides. According to Lin, one reason that caused the difference might be Chinese and American professors' different teaching styles. American professors' teaching was more "alive, reflective and interactive." The technology tools they chose served the purpose of arousing students' interests and curiosity as well as encouraging students to reflect on abundant resources. Further, technology could help build communication between professors and students. On the contrary, many Chinese professors focused more towards the end results. They used more lecturing rather than interactive activities. Therefore, the technology they chose served for the purpose of teaching content to students.

Hu. Hu stated that the difference in professors using educational technology existed in the educational technology usage after class. Her American professors used more technology after class to keep students motivated and updated. She further explained that American professors paid more attention to students' preparation and review before and after class than Chinese professors. Therefore, they used different educational technology tools to connect with students after class, such as organizing group online discussions, keeping students updated on the class schedule via email and sharing learning resources on P drive.

Differences in students' use of educational technology. Participants described a few differences between Chinese and American students in using educational technology. The first difference is that American students seemed more comfortable to use technology for a variety of learning purposes. For instance, Yue, Yuan, Lin, Zheng, and Shi all mentioned that while using technology during class time was not allowed in China, it was common that some American students used their laptops for taking notes during class. In China, students usually used their laptops for homework after class or for other personal uses. Yue admitted that she did not feel comfortable using a laptop during a class, even for taking notes. She felt using any type of technology during class was disrespectful to her professor. Furthermore, she could not type as fast as most American students could.

Another difference that a few participants noted is that American students were more familiar with technological resources. For instance, Yuan confirmed that his American classmates "definitely knew more accounting software and online resources than we Chinese students did." Hu explained that American students were better at using technology for learning and looking for jobs. She took LinkedIn as an example: as accounting majors, all students in her class used LinkedIn for future job opportunities. Hu did not have a LinkedIn account until the middle of the semester.

Table 8 shows participants' explanations on American and Chinese students' different technological preferences when it came to collaboration.

Table 8

Participants' Descriptions on Technological Preferences for Collaboration

Participant	Technological Preferences in China	Technological Preferences in America	Participants' Description
Yue	QQ	Google Doc,	In China if we had a group project, we

		Facebook	connected on QQ and talked about how to assign the project to each person. Finally we would come back and present each one's part. But here we assigned the task and then collaborate via technology, mostly Google Doc. Sometimes we discussed back and forth on Facebook.
Lin	WeChat, QQ and QQ emails	Facebook, Google +, emails	"When collaboration was needed for a project, I preferred WeChat, QQ or emails for communication but my classmates preferred Facebook, Google+ or just face-to-face discussion. So we usually compromised on using email for communication."
Chen	WeChat, online conferences	Facebook, Google Doc	When I collaborated with Chinese students, I used video and audio conferences to discuss the project. On WeChat, we would set up a group discussion where they could freely leave messages and throw in questions. But when I collaborated with American students, I like to use Facebook or Google Doc."
Man	N/A	Chinese email	My American classmates used a lot of Google apps for learning purposes, such as Gmail, Google Doc, and Google Drive. I did not get to use Google until I got to America. So when we needed to collaborate on a project at the beginning of the semester, I preferred my Chinese email account for communication.
Yuan	N/A	Emails	Since there were a lot of group projects in America, my American classmates did a lot of online meetings. I had to do that, too. But I prefer using emails.
Na	Baidu Cloud	Google applications	I used Baidu Cloud to back up my documents and share my resources with friends. Most of the time we shared entertaining resources such as music or ebooks. Since my American classmates did not know/use it, I had to register a Google account for collaboration. If they could use Baidu Cloud, sharing resources would become easier.
Hu	WeChat	WhatsApp	We used WeChat and they used WhatsApp for group discussion. Most of the time I had

			to make a compromise to use WhatsApp because of other American team members' preference.
Zheng	QQ	Email, Google Doc, Facebook	We used QQ to communicate with classmates but American students prefer Facebook and Instagram. When I had a group work with American students, I have to use email, Google Doc or Facebook. They preferred to use the technology they knew.

Gu believed American college students had higher technology competence than Chinese students. She elaborated on her reflections:

I feel there is a gap in technology education between secondary and higher education in China. Before I started college in China, computers were for fun. I did not have technology class until the first year of college when I started learning the basics of Microsoft Office because I had to finish some homework on my laptop. It was a tough start. But American students did not seem to have this kind of gap. When they come to university, they seem to be confident in using technology to write essays, design PowerPoint slides, and finish assignments. Besides, they knew a variety of technologies to support their learning. American students probably started taking technology classes very early. Therefore, I feel the transition [of technology education from high school to college in China] is not as smooth as in America. It was probably just my generation.

Differences in Technology Support

In the interviews, participants reported a number of technological problems they had come across in America. One huge difference that participants noticed between Chinese and American educational technology is in accessible technology support on campus. Participants could identify more sources of technology support in America than in China, as shown in Table 9.

Table 9

Sources of Technology Support in China and America

Sources of Technology Support	Students Using Technology Support in China	Students Using Technology Support in America
Classmates	6	0
Third Party "Clinics"	3	0
Online Tutorials	3	2
Himself/Herself	1	0
Staff in Library	1	5
IT Support Center	1	10
Professors	0	1
Teaching Assistants	0	3

In their previous technology experiences in China, participants relied on computer companies and third party "computer clinics," their friends and classmates, or themselves to fix technological problems. On the contrary, all the participants had access to technology support within American universities. Even though most of them did not use it on a regular basis, the participants understood what kinds of technological supports were available. As Lin stated, "I don't think we had any department or branch in my Chinese university that was set up for providing students with technology support. I had to be on my own when I came across any hardware or software problems. But here, I know IT Center is the place I can find technology support, even though I do not always us it."

A few participants described positive experiences with technological support within their universities. Yuan and her classmates received support from their professor by being introduced to a number of databases to finish research-based papers. Their professor further explained in detail on how to get access to the databases in the library and online. Yuan described his

experience of calling the Department of Technology in order to fix a bug on his P Drive. The problem was solved within two days. Gu called IT Support Center when things went wrong with setting up the password to her email account and received help immediately. Yue claimed that the service of her university's IT Center was very satisfactory. She always received help from the IT Center for technological problems ranging from computer system crashes to being unable to log into her university account.

Despite the abundant sources of technology support in American universities, some participants chose not to seek help from external university resources in the first place. Na shared her experience:

> At the beginning of the semester, I worked with my Chinese friends together to figure out how to do assignments online and, how to register and log in the university web portal and email. We did not want to ask the IT support center these simple questions. If something wrong happened to my computer in the lab, I would probably ask the teaching assistants who were in charge.

Similarly, Man indicated that she would Google the solutions first before she requested help from other people. However, she clearly understood where to seek help if the problem could not be solved by herself: "If things go wrong with the student account, I have to seek for help from the IT center; if it is the accounting software we installed on our computer, we can ask our teaching assistants to help resolve the problem."

Chen confirmed that technology support came from different departments or centers of his American university. Like most of the participants, he was clearly aware of which resource he could use once a technological issue arose. For instance, students can easily find the assistance number on the printer and scanner if the machines stopped working; the staff in the

library was always available for solving technological issues in the library during their office hours; and other technological issues could be solved by the teaching assistants in his department or be reported to the related department via teaching assistants. Usually, there was contact information for technology assistance on the university website.

The first research question explored the participants' similar and different educational technology experiences in China and America. Participants described similarities and differences regarding educational software, hardware, technology support, and technology practices. Participants all reported a satisfactory educational technology experience in America. In addition, they mentioned few negative consequences caused by the educational technology differences between China and America.

Chinese Students' Description on Educational Technology Experiences in America

Research question 2 was designed to explore Chinese students' description of their educational technology experiences in the United States. In this section, participants' descriptions of both positive and negative experiences of using educational technology will be presented around each theme.

Chinese Students' Description of Positive Experiences Using Educational Technology in America

Participants described three major positive experiences with using educational technology in America: educational technology accelerated students' learning (e.g. Turnitin, online resources, YouTube videos, educational technology support); educational technology supported social connection with American students (via social media such as Facebook, WhatsApp, Google Plus, LinkedIn); and educational technology made campus life easier and more convenient for international students.

Educational technology accelerating students' learning. A major positive educational technology experience that most participants mentioned is that educational technology facilitated students with their learning by improving their learning efficiency, raising their awareness of academic integrity, expanding course offerings and learning materials, offering choices on learning styles and flexible schedule, and promoting autonomous learning.

Lin. Lin described herself as being "more efficient and less pressured" using a variety of educational technology. She took her professor's online resources as an example:

> My professor shared a lot of learning resources online, which highly improved my learning efficiency. The most valuable resources were the summaries of our reading materials. I believe the professor himself did those summaries. The summaries were concise and right to the point. I always downloaded the chapters that I wanted to review. English is a foreign language. When I read through massive amount of materials, I probably could not grasp the most important points that should be mastered. After reading the professor's summaries, I could easily relate the outline and key points to what I read, and identify the most valuable information between the lines.

Yue. Yue identified a lot of technologies that promoted autonomous learning, including Turnitin, blogs, and online workshops. She explained:

> The learning environment in America encouraged learning autonomy...Take educational technology for an example. When I was in China, I was dependent on my teachers and textbooks in providing knowledge and information. Most of the time I did not necessarily need to have technology access to finish my assignments. The reason was that the professor cared about how we mastered the knowledge in the textbook. As long as we could provide the right answer from the textbook, we could get a good grade. But here my professors are

more open with what I present in my assignments. For many assignments I could research on many online resources and synthesize ideas. I could reveal my true perspectives. So I do not need to rely solely on my textbook to finish an assignment…And in America I am more able to monitor my learning thanks to many technologies. For instance, I checked regularly on D2L for professors' feedback on my assignments; I used Turnitin to make sure my paper avoided plagiarism; I attended online workshops for supplemented learning. These technologies empowered me with a stronger sense of responsibility for my own study.

Man. Man described herself as a "more active and efficient learner" after she came to America. She noted that technologies here supported a variety of forms of learning. More importantly, learning via technology is necessary and encouraged in America.

After I came to America, I had become a more efficient learner. I could easily reach out to my professors and classmates via email if I have any questions about class. I could search online to have many questions answered during my study. I began to use Google, LinkedIn, YouTube and other platforms that I could not get access to or had not even heard of in China. I always watch videos about successful businessmen to get inspirations and ideas. All these resources made me a more flexible and effective learner.

Yuan. Yuan explained that educational technology in America facilitated his progress in academic performance because there were numerous learning resources online. He described his experiences of using online courses and videos:

I learned a lot from the website Coursera. I was enrolled into a couple of courses and they were a great supplement to my regular classes. I also benefited from watching YouTube videos. The videos provided so much valuable information that I can gather for my papers and presentations. In China, a great number of wonderful videos were filtered so students

could not benefit from them.

Shi. Shi described how educational technology helped create a more enjoyable and convenient learning environment in America. He elaborated from different perspectives:

> My American professors encouraged us to take notes on our laptop or iPads. There were chargers on each desk so we can charge our devices to avoid a power shutdown. I think it is the most relaxing thing in the class. For Chinese students, we sometimes struggled with catching up with professors' lectures. When I had my laptop/iPad at hand, I can easily get access to online explanations or have some terms translated.
>
> The Galaxy system contained all students' personal information. Once I logged in, I could register for a class, check my GPA, and pay tuition or fines. We could get notifications and updates in Blackboard about class information, university newsletters, etc. It made everything so convenient.
>
> We had a lot of collaborations for group projects. In the past, we used to use the flash drive to share resources. But now, with Google drive, we can just upload the files and share with team members. Communication became much easier.
>
> For some students who could not take lessons and quizzes in school, they can schedule their tests in the testing center according to their schedule, as long as the time fell into the time period required by the professor. In addition, students can make reservations for the study room in the library so they can discuss their project or write group homework in it. I think that is different in China.

Shi also described how much he benefited from online presentations. The presenters were a few university alumni who had already become successful businessmen at the time. The speakers shared a lot of invaluable information with the students and offered practical advice.

Zheng. Zheng listed a few technologies that enhanced her academic performance. She specified her positive experience of using Turn-it-in and an online testing website.

> Turnitin really helped me avoid plagiarism. My Chinese university had this kind of originality checking software, but it was mainly for checking graduate students' work. Besides only graduate school could use it. So I did not have a strong sense of being original when writing a paper. But here, Turn-it-in is available in Blackboard. I could easily check the originality of my own paper. I feel less pressured because I could monitor my writing during the writing process. Another positive educational technology experience was taking exams under testing software. The testing software would lock down the computer once we started the exam so students could not search for answers. It was really convenient because we could take the tests whenever we felt ready (within the three-day frame). And we could take the exams at home. It worked perfectly on snowy days.

Gu. Gu noted that educational technology enabled her to become an "active and independent learner" in America. She had a better control of her own study thanks to technology.

> Technology brought so much convenience to my study, especially for independent learning. I have a variety of technology resources to rely on, so I feel learning become more enjoyable and interesting. In addition, I could flexibly adjust my learning online based on my needs. For instance, as a nursing student I need to remember a huge amount of terms. I have a medical vocabulary dictionary app installed on my phone, so I could easily find out a definition of a term; I could use a couple of apps on my smartphones to see the images of vessels, bone fractures, or an infection; I could simulate a simple treatment on a 3D body that could enhance my understanding of things I learned from class; I could watch a video on YouTube to see more in-depth explanations on anatomy. Learning became three-

dimensional with the support of technology. I could adjust my learning styles based on my preference. I became more efficient in accepting new knowledge.

Gu also confirmed the benefits of sharing learning resources in their class on Facebook. She was able to learn of many useful apps and websites from her classmates.

Chen. Chen confirmed that educational technology promoted his learning efficiency and further enhanced his academic performance. He pointed out that educational technology in America offered greater amount of opportunities for autonomous learning. For Chen, educational technology had a better coverage in campus so learning could be more mobile and convenient. He picked out Google Drive, online videos, and online databases as three major educational technology that brought most positive influence to his study. He specified his experience of using Coursera one semester:

> I was not very satisfied with the course offerings that semester so I registered three courses on Coursera. On there, I can pick courses or professors according to my own needs and preference. Once I finished a course, I could get a certificate. The things I learned from the three courses were a great supplement to what I learned from my university. I could not finish all the three courses because I had a lot of assignments due at the end of the semester. But it was definitely a great learning experience.

Hu. Hu mentioned a few technologies that improved her learning: Google Scholar, D2L, Turnitin, online library, online dictionary, and virtual drive. She described her learning as "being infused with technology." She shared:

> I feel educational technology provided an all-around support for my study. From grammar checking to originality checking, technology can act as a tutor to help improve the quality of my assignments. Limitless amount of resources and information are easily accessible… All

my professors provided in-time replies to email so learning became more convenient. Many professors shared useful information on P-Drive so I could download the documents based on my needs.

Na. Na believed that technology provides an informational and interesting learning experience in addition to traditional learning. She shared her experience using her computer lab for her business class:

Whenever I used the lab computer in my department, I felt I could learn faster. Under Bloomberg, I could find detailed definitions, strategies, and cases in Business. So when I had questions, I could check the explanations and probably I could have my questions answered. A lot of times the knowledge I learned from the software became a good supplement to what I learned in class. I could see my progress in a short time.

Educational technology supporting social connection. Most participants shared their experiences of collaboration with their classmates via educational technology. Many participants were able to build up or further develop friendships with their classmates during the process of online collaboration.

Man. At the time of interview, Man stated that there were many Chinese students in her program. They did not have much communication with American classmates. However, she shared her experience of developing a friendship with a Vietnamese classmate during their collaboration on a class project.

Last semester I had a group project which lasted for the whole semester. My partner for the project was a Vietnamese woman. She had lived in America for six years and now she works in Texas. We used WeChat for instant communication. She works full-time, so she did not have time to come to campus. We were able to collaborate via Google Doc and

Dropbox. We could write the paper online and review each other's work. It was very convenient. After collaboration, we became very good friends. She was generous to provide me with a great deal of advice on finding the right career.

Lin. Lin mentioned that she used WeChat and Facebook to connect with her Chinese and American friends. She and her classmates usually did not use personal devices during class. Yet after class, technology helped her with building up friendship with American classmates.

> At the beginning of the semester I did not know how to get along with them. We have different cultural backgrounds, and sometimes I was not sure how to start a conversation. After becoming friends with them on Facebook (due to a group project), I could get to know about their lives and learn their ways of communication, which helped me quickly adapt to their styles and become more comfortable when talking with them face-to-face.

Yuan. Yuan mentioned a few social media that were used for communication with his American classmates: Skype (for online conference), text message, WhatsApp (for project review and feedback) and Facebook (for sharing learning resources). He shared his experience of using educational technology to build up his personal network after class:

> I invited my classmates to install WeChat on their phones, and over ten classmates did so. I chat with them after class and, interestingly, many of them tried to learn a little Chinese from me. Facebook is another platform that I can easily connect with all my American classmates. One group project started our connection on Facebook. After a while, we not only talked about study on there, but also discussed a variety of topics, such as football or music. Thanks to Facebook, Messenger and WhatsApp, I got to expand my personal network and build up friendship with many American students.

Shi. Shi believed LinkedIn and Facebook were two major social media that initially were used for learning, but later became his platforms for social networking. He explained:

> Facebook is the mostly used social media here. For Business majors, LinkedIn is also a very important platform. At first I did not have many American friends. After we knew each other's name and account in class, my American classmates and I began to form friendships via Facebook and LinkedIn. In reality most Americans did not know much about China or many were not interested in Chinese culture, so it would be a little hard for us to start a friendship with American students. But thanks to these social media, I feel more comfortable to communicate with them.

Hu. Hu described her experience of using social media for social connection with her American classmates in and outside class. She confirmed that she did a lot of teamwork with her classmates. Her connection with American classmates on social media evolved in this fashion:

> Initially we used Facebook and WhatsApp for group discussion. We used them solely for academic purposes so I seldom shared personal things on there. Sometimes the professor would request collaboration via a certain social media such as Twitter. Gradually I began to connect with a few students via social media after class. I used WhatsApp a lot to chat with friends from America and other countries. We shared a lot of fun things on there.

Na. The technologies that Na used to connect with her American classmates are Dropbox, Facebook, emails, Google Drive, and text messages. She shared that she began to use these technologies because of group projects:

> For my classes such as Auditing, Marketing and Communication, we did a lot of group projects. We were required to use certain media for collaboration. I have never used Google Drive and Dropbox before. But my American classmates recommended them to

me and showed me how to use the basic functions. As we collaborated more, we began to follow each other on Facebook.

Chen. Chen had more Chinese classmates than American classmates in his class. Therefore, at the beginning of the semester, he did not have much communication with American classmates. However, the professor purposefully arranged group assignments to help Chinese and American students mingle together. After several group projects, Chen was able to build up friendships with a few American students. He shared his experience:

> The professors treated us the same. But Chinese students are very different from American students. We are less active in group discussion and classroom activities. Therefore, our professors tried to pair us with American students who are more active. At the beginning I did not talk much in group discussion during the class. But after class social media offers me an easy way to express myself. Online I had better communication with my American team members. After a while, I became friends with a few of them. We expanded our discussion topics from assignments to food, sports, and other activities.

Zheng. Zheng noted that after-class discussion definitely helped her develop friendship with her classmates. She shared her experience:

> When I studied in China, professors did not require any after-class communication. But here American professors require us to do a lot of discussion on D2L or via email after class. For instance, we were required to comment on others' posts on D2L and receive his/her feedback, or have discussion over a topic. Technology connects each student and allows us become closer.
>
> In China, we attended most classes as cohorts, which means even though we might not have much after-class interaction, we could still connect with each other during a variety

of classes. In America, class enrollment is different. Students can select courses at their own pace and preference. My classmates were constantly changing, so we did not have many opportunities to know each other during a semester. Thanks to some online platforms such as D2L, we had after-class opportunities for communication so we could understand each other better. For instance, in a few classes, we had doctoral and master students studying together. We were like two separate groups that did not communicate much during class. However, we could have good communication on D2L. I remember sometimes when I read some doctoral students' posts in which I shared the same ideas, I commented on the posts. That was an icebreaker. The next time in class, we could talk more about the posts, which led to more communications. I guess on D2L, I can be more open with my ideas because I could not see other people behind the screen.

Gu. At the beginning of her study in America, Gu did not know what social media or online resources that other American students used, except for Facebook, Twitter, and YouTube. She mentioned Quizlit as the icebreaker to start her real communication with her classmates:

As Nursing majors, we need to remember numerous terms in our discipline. One of our classmates set up a class on Quizlit, which is a mobile and web-based study application that trains students via flashcards and various games and tests. We could do independent learning and group learning. We can also share information and tools on there. Gradually, we got closer. We began to connect on Facebook.

Educational technology promoting easier campus life for students. All the participants listed several educational technology that had made their campus life easier. In general, information "input" and instant communication via educational technology are the main

factors that make students' campus life easier. Table 10 presents the specific technologies that facilitate participants with their study and living on campus.

Table 10

Participants' Description on Educational Technology Facilitating With Campus Life

Educational Technology	Functions	Number of Participants Who Experienced Using the Technology
University emails	Notifying emergencies	10
	Updates on university workshops and events	10
	Updates on university regulations and policies	3
Facebook Group/Webpage	Updates on university/department events, workshops, career opportunities, etc.	5
	For personal purposes such as looking for apartments or roommates	2
International Student Office's WeChat	Policies related to international students	3
Library Online System	Borrowing books, downloading e-journals/books	4
Online Writing Center	Online reservation for editing papers	2
Technology Center Online System	Online reservation for technology support	2
Public Computers	Mobile learning	1

Students shared their experiences receiving university emails regarding class change, workshops and seminars, department and university events, and policies about international students or the university. Students were able to contact professors, departments, and universities and obtain replies in time. As Yuan stated, "I get about five emails from the university every day during the week. I was updated with the events and information on campus, from academic resources to sports or music events." Lin noted that university emails built up a connection

between students and different departments in the university. These emails helped students become more aware of the resources and opportunities around campus.

Chinese Students' Description on Negative Experiences in America

Some participants described a few negative educational technology experiences, yet no one mentioned frustration or embarrassment associated with those experiences. Table 11 presents the negative educational technology experiences that some participants mentioned due to internal and external factors.

Table 11

Participants' Negative Educational Technology Experiences

Negative educational technology Experiences Due to Internal Factors	Negative educational technology Experiences Due to Internal Factors
Failure to save assignment drafts, flash drive break-down, online citation in paper (Zheng); Insufficient knowledge about daily software such as Excel, Forgetting checking emails (Hu); Not being familiar with the printer and scanner in the library, forgetting username and password for web portal (Lin)	Limited storage capacity of virtual drive (Yuan); Break-down in the Galaxy system, learning new software (Shi); University online system crush down (Chen); Insufficient guidance on using daily software (Na).

Even though the participants above mentioned a few unsuccessful educational technology experiences, they adapted to the American technology environment quickly. According to the participants, these experiences happened at the beginning of the semester and they did not cause any long-term negative consequences to the participants' study or living in America.

Chinese Students' Perceptions on Their Technology Efficacy

This section presents the data collected to answer the third research question: How does the educational technology use in America influence Chinese students' technology self-efficacy? During the data analysis, three themes emerged: a) participants have increased technology self-efficacy in using technology for learning and living; b) participants have higher curiosity and willingness in learning new technologies in the future; c) increased technology comes from a variety of sources that will be presented below. In the following section, participants' interview data summary on their technology self-efficacy will be presented individually.

Yue

Yue viewed herself as a "novice technology user" when she was back in China. Except for the ease that she could type Chinese characters, she did not use technology such as email and social media very often. She shared her experience of using technology after she came to America:

> After I came to America, I realized most of the time students needed to rely on technology to finish assignments or projects. I had to use Word, PowerPoint, and Excel to finish most of my assignments. I constantly needed to check emails and exchange emails with professors and classmates. Gradually, therefore, I changed my learning habits from relying on pens, paper, and books to using technology. I became more ready and open with learning new technologies. Now I feel technology has become a big part of my life. I learned a lot of new technologies in the past few years, and I am certain my competence in using technology has grown drastically. I am more comfortable and confident now with using technology in learning.

Man

Man explained that many technologies were new to her at the beginning of her study in America, such as using the university website and the learning management systems in her department. Still, she explained that they were easy to learn and use. Therefore, new technologies did not diminish her technology self-efficacy. Instead, since her knowledge in technology kept increasing, she became more confident in using a variety of knowledge in her study. In addition, she regarded learning as a more enjoyable experience with the support of technology. Man composed the following information to share:

> After I came to America, I needed to use more technology to finish my assignments. I did not have a hard time learning technologies that were used on a day-to-day basis, such as the Blackboard or the university's website. In terms of some software specialized in Accounting, such as the SAP and Quickbook, I never knew them before I came to America. Even though it took me a little longer to get used to them, they were easy to use because they were designed to be user-friendly. Besides, I could get support from teaching assistants in our department or a tutor from the library. I can even watch a YouTube video to have my problem solved.

When asked how she would respond to new technologies in future graduate studies, Man expressed that she was confident enough to welcome different technologies in her academic life. She believed that new technologies should not be hard to learn.

Gu

Gu believed that her technology self-efficacy increased significantly due to highly frequent use of technology. For instance, PowerPoint and Word were frequently used for finishing assignments. She also mentioned that after she came to America her competence in

online communication (with professor and classmates) greatly improved because she exchanged emails with them all the time. She spent about one month to get used to the technologies in America, but it took her about three months to feel comfortable and confident in using these technologies. She summarized that "my competence in technology use improved because I used a variety of technologies on a daily basis in America."

Chen

Chen confirmed that his technology self-efficacy had improved. From the beginning of the first semester, he found educational technology in America to be easy to learn. Instead of feeling nervous to learn new technologies, Chen described himself as "being more curious about accessible technologies." He gradually found that most of the technologies did not even need a learning curve to be mastered.

Chen stated that he knew where to turn to for technology support. He listed several resources: students from previous cohorts, classmates, professors, and the technology support center. Since he was clearly aware that his technology issues could be solved with other people's help, he was confident to learn more new technologies. He has seen increased opportunities in the American campus to practice technology skills. Therefore, he needs technology every day to function as a student in America.

Zheng

Zheng reflected on her technology experiences in China. She shared that very little technology self-efficacy was involved to use technology for learning in China because 1) professors did not push students to use technology, and 2) only basic functions of certain technologies were used (such as Word and PowerPoint). After she came to America, she began to see that technology had become a big part of a student's life. Even though she was pushed to

integrate technology into learning at the beginning, it sometimes aroused her curiosity and interest for learning new technologies. During this process, she received help from her classmates, professors, and the IT support center. In general, her technology self-efficacy greatly improved. She shared her view on her technology self-efficacy development:

> I feel technologies in America are designed to be user-friendly. It took me a couple of weeks to get used to the daily technologies. What makes me feel confident in using technology now is that I know a lot of online resources that I can use to achieve learning goals. In addition, I have technology support around me. But I know that technology is promising and perilous at the same time. On one hand, I benefit from the efficiency and convenience that technology had brought to me. On the other hand, technology can cause issues. So even though I am more confident in my technology competence, I became more cautious with technology. For instance, I always check my content or files several times before I send them out. I always have back-up files in my Flash drive or P drive.

Lin

Lin concluded that her competence in using technology had improved after she came to America. She contributed this improvement to her previous technology experiences in China:

> I feel I have enough knowledge and experience of technology that can enable me to finish most learning tasks that involve technology. For a lot of technologies, I have seen similar ones in China. For instance, the professors used similar multimedia and platforms during and after class. Therefore, my previous technology experiences allow me to learn new technologies faster. In addition, technologies here are designed to be learner-centered so they are not hard to learn. I remember after I came here, it took me about a week to get to

know most of the technologies that I need to use for study. My technology self-efficacy definitely improved in America.

Yuan

Yuan had learned a lot of new technologies after he came to America, which he regarded as the main factor for his improvement of technology self-efficacy. He shared his experiences of learning new technologies:

> At the beginning, I found all the other American students were more used to a technology-rich environment. They seem to be very familiar with a variety of technologies, from social media to major-specific software. I was not frustrated or unconfident. Rather, I was very curious about the technologies they used. As I started to learn from them or from the professors, I gradually built up my technology knowledge and skills. Therefore, my knowledge about technology resources and usage has increased since I came to America.

Yuan added that the more technologies he knew, the more he realized that he did not know. Therefore, he had great desire to keep himself updated with technology.

Shi

Shi described his adaptation into a new technology environment as "quick and easy." He viewed himself as "computer literate" in China because he knew the basic features of a variety of technologies. He believed his technology self-efficacy had improved in America and explained as follows:

> Here I can get access to more educational technologies than in China. I had more opportunities for practice and I gradually adapted myself to these educational technologies. Now I have learned more advanced technologies and resources and I know how to use

them to support my learning. Therefore, I think my technology self-efficacy has greatly improved.

Hu

Hu described her feelings for seeing new technologies in American campus as "excitement." Technology difference between China and America did not bring any negative influence on her technology self-efficacy. She shared:

> I feel confident in using new technologies here. They are not very different from the technologies I previously knew and new technologies/features are not hard to learn. After a few days of practice, I became used to integrate technology into everyday study. For instance, I can search online for anything, from finding Tax lawsuit cases to apartment rentals. Now I use American websites more because I can get the most essential information related to me. I have a clear sense of where and what technologies can be used to support my learning. Therefore my technology competence improved and my technology self-efficacy increased.

Na

Na went through a little frustration when she used Bloomberg, a financial management software, for the first time in America. But gradually, Na was able to finish projects and assignments in Bloomberg on her own. She contributed the improvement of her skills and technology self-efficacy to continuous practice and professional guidance from the teaching assistants. She also shared the support she received on other technology issues:

> At the beginning, I discussed some of the technology issues with my Chinese friends and American classmates. They were very helpful in finding the solution for me. I started with

learning how to finish my assignment in D2L and how to log in and register for classes. Some professors also helped me with becoming familiar with a variety of technologies.

According to the interview data, all the participants described improvement of their technology self-efficacy. They attributed this improvement to their previous technology experiences as well as support from friends, classmates, professors, and technology support centers in their universities. Several factors were mentioned to have increased students' technology self-efficacy: user-friendly technologies (learner-centered), technology-integrated learning environments, achievable tasks designed by the professors, frequent access to technologies, and numerous accessible online tutorials and resources (that support autonomous learning).

Technology and Acculturation

This section presents the results for the fourth research question, "How do Chinese students describe the role of educational technology in their acculturation in the United States?" Included in this section are participants' reflections on their acculturation in America and educational technology's role in the process of acculturation. Participants referred to acculturation at two dimensions: acculturation to the educational technology environment, as well as acculturation to college life. While many were not certain if they could be able to adjust to the American culture, all the participants stated that they were acculturated into the educational technology environment and American campus life. Meanwhile, all participants confirmed the importance of technology in the process of acculturation.

Chen

Chen noticed many differences in culture between the United States and China. For instance, Americans are more open with ideas and more humorous while Chinese are more

reserved. Sometimes he could not understand the jokes or slang by his American professors and classmates. However, Chen confirmed that living in a different culture helped him develop more objective attitudes and more interest in learning new things. He shared:

> The longer I stay, the more objective my judgments become. I became more flexible in accepting the things I see. I used to resist certain things in this country at the beginning, such as the way American students talk to teachers in class. But now I am curious and more open with new things. I see many Americans as being friendly, creative, and reliable.

In terms of his experiences in America and the role technology played in acculturation, he explained:

> I have good experiences learning in my university so far. I did not see or feel any prejudice or racial discrimination. But I do feel some unfriendliness outside the campus, especially in the downtown area. Technology helps me with acculturating into this society. With technology I connect with more people, know more resources, learn more ideas and more lifestyles and become more confident. I noticed the difference in technology use between the two countries, but I know China is catching up in technology investment in education. The difference did not me feel embarrassed or frustrated; rather, it makes me more curious about new technologies here.

Zheng

Zheng described the obstacles she faced at the beginning of the semester. She described the significance of technology in her process of acculturation. She shared:

> Technology enables me to "survive" in my university. In campus, if I do not check email or Facebook, I may miss very important messages that are closely related to my major.

Technology-integrated learning is a learning style that I need to get used to in America. But at the same time, I'm confident in learning new technologies because I get technology support from my friends, classmates, the university and numerous online tutorials. In the future, the close connection with technology will continue when I began my professional journey. The promise and peril that technology can bring will help me acculturate into the society.

Zheng further expressed her confidence and motivation in learning new technologies in the future:

When I first came to America, I was faced with obstacles such as differences in language, culture, and technology. I wished everything were simple to learn and use. Now that I have become a graduate student, I need to know more than just basic technology. Last semester I attended a couple of technology webinars. I learned many ways of integrating technology in ESL teaching and critical thinking. I feel inspired and motivated to learn more new technologies that could benefit me for future learning and working, despite of the possible challenges.

Man

Man stated that technology helped her acculturate into American society in terms of building up connection with other people via social media. She explained:

I used Facebook and WeChat to connect with American and Chinese friends. We got to know each other in class or during orientation, but social media provided a way to keep the connection. Additionally, university emails, university websites, and news apps on my phone allow me to know more about the things going on around me, either in campus or in the society. I learned to use Google and YouTube after I came here. Whenever I

want to expand my understanding on a topic or a phenomenon, whether it is related to my study or daily life, I would Google it or watch a YouTube video.

Man further described that as she was adapting to the American style of living, everything began to develop towards the right direction. She explained:

> When I first came here, there were so many new things that attracted my attention. After a couple of months, once I got used to the big environment, I felt a lot of things began to get on the right track, including technology… I understand that the technology differences between the two countries may cause some confusion for Chinese students at first. But I believe as China is investing more in educational technology in future, the differences will be gradually eliminated.

Yue

When talking about acculturation, Yue stated that she had not acculturated to American society. But she shared that technology definitely helped with the acculturation process:

> I believe the new technology helped me better live in this country. With social media and some online resources, I got to know many aspects of Americans' lives. My communication with Americans became easier and more frequent. During my spare time, I like to watch CNN, YouTube and follow friends on Instagram.

On the contrary, Yue felt that she had already acculturated to her university life. With the help of technology, she was able to finish learning tasks and have good communication and collaboration with her classmates. University emails kept her updated about the university news and events. The technology created a sense of belonging and security for her because she was closely connected with her professors, classmates, and university without important information.

Lin

Lin noticed that the competence in using educational technology did not vary much between Chinese and American students. However, since educational technology is not as widely integrated into learning in China as in America, Chinese students may have a little difficulty in adjusting to using technology to accomplish a variety of learning tasks. She described how technology enabled her to better adjust to campus life in America:

> Technology definitely speeds up my acculturation process. I could communicate and collaborate with classmates on a variety of technology platforms; I received feeds or emails from different departments of the university on important information. As international students, our resources are limited. Technology opens our eyes to see more and know more. The more we know, the better we adjust ourselves to the environment.

Meanwhile, Lin pointed out that WeChat, the most popular mobile app for communication in China, could eliminate the Chinese students' opportunities in acculturating into American life. She shared:

> Every Chinese student has WeChat on their phones. On WeChat, Chinese students could connect and share resources. It is a platform that we could turn for help from other Chinese students. Even the Office of International Education in my university registered a WeChat public account to better facilitate Chinese students. However, I feel overuse of WeChat could hinder Chinese students from reaching out to students from other countries. On WeChat we have a lot of Chinese friends to chat and maintain friendships. Therefore, our motivation and urge to connect with new people may be delayed. If we could have the same social media with American students, the acculturation process could be easier and faster.

Yuan

Yuan did not defined himself as "being acculturated into American society." His life had ups and downs in America. When everything went well, he felt much better and felt he had adapted to American life. When things went wrong, he felt differently. Still, he pointed out that he had become used to his daily campus life and stated that technology was one of the factors that promoted his acculturation to university life. He explained in detail:

> Language and culture differences block us from really acculturating into the society. However, the more opportunities we have for communicating with Americans, the better we adapt to this society. Technology definitely offers us many of these opportunities. From online discussion in a course to later personal connection on social media, technology supports our personal connection with the people around us.

Yuan specified that not every American was open and easy to communicate. He only had chances to connect with the people that were interested in getting to know one another's culture. He described his experience in a Cross Cultural Club:

> My university always sent out emails on workshops, seminars, and events around the campus. Once I learned about a Cross Cultural Club from an email, and I decided to enroll in it. In that club I got to know a lot of people who were passionate about multicultural communication. Every student was paired with a "language pal" from another country to practice English and learn another culture. Sometimes we had social events together. We have a group on Facebook and we could exchange ideas and information on there. This club expanded my understanding on cultural differences at many levels. Online communication with American friends not only provided me with information and resources, but also enhanced my English efficiency.

Yuan was willing to learn more new technologies to know more people and acquire more information. As he knew more, his sense of belonging to this country grew.

Shi

Shi was still learning and trying to adjust to the new culture. Educational technology played a very important role in the process of acculturation. He explained:

> Technology greatly improved my learning efficiency and my communicative competence. There was frustration at first. For instance, I did not have the habits of checking emails every day. I missed some notifications, but the professor thought it was my responsibility. After a few classes, I got used to the ways that my professor and classmates communicate via email, Blackboard, and other platforms. I especially like the professors' prompt feedback to us by email or on Blackboard.

In addition, Shi mentioned a few other technologies that helped him with acculturation. He shared:

> I always check the university's news app on my phone. I can get a lot of information via the app, such as university events or class updates. In China, my university did not have this kind of app. The university has a TV station and their own channels. We can watch basketball games and some events/speech that are held on campus. The university has a TV station and their own channels. We can watch basketball games and some events/speech that are held on campus. So I have a stronger sense of belonging here because I feel I am closely connected to the university.
>
> The International Student Service Organization sends a lot of information to international students' email. The information might include some policy change in immigration status and the newest information for international students to find a job.

When I first came here, I did not have a car. I needed someone to drive me to the store to buy a lot of things. I posted on the International Student Service Organization's online forum asking for help and got a few replies. Thanks to the technology, I was able to have a smooth transition from the Chinese living style to the American style at the beginning. Later on, I got to know many international friends in the forum.

Hu

After reflecting upon her technology experiences, Hu confirmed the important role technology played in her acculturation to America. She shared the information below:

Technology enabled me to connect with people that I did not usually talk to during class. I remember at the beginning of the semester, I was in a class where I was the only Chinese person. For the first few sessions, I was sitting by myself in the first row. Nobody would sit with me. That was really embarrassing. But after a few online discussions and collaboration, I began to talk with a few classmates in real life. Later on we became friends. Technology was an icebreaker for me to connect with other students at the beginning.

Hu believed she was used to her campus life. She was more Americanized in terms of communicating with American friends and studying and living on campus. She also mentioned that she felt more independent and confident in studying in America.

Gu

Before Gu came to America, her mother had been living in America for a few years. Therefore, Gu believed she had an easier start in America compared with other international students. However, she noted even though most Chinese students do not have families in America to rely on, there are many resources on campus for academic and technological support.

In addition, she confirmed the importance of technology in acculturation to America. She described:

> It took me some time to adjust to the technology on campus. The LMS and university websites are more complicated than those in my Chinese university. I mean, the technologies here are easy to use, but they are integrated in every aspect in my study. But once I got used to them, my efficiency in learning improved. With technology I was able to open up more easily and get to know new people. I also got to learn more about American culture from online resources, such as what to avoid when renting an apartment and where to look for part-time jobs. Technology improved my competence in adjusting to American culture.

Gu pointed out her cousin in New York had a tough start in adjusting to educational technology in her university.

> My sister in New York, who came to America last year, complained that she was not used to her university website. The website was overwhelming in terms of information presentation, which she said had made her dizzy. There were several times that she missed important notifications or deadlines because she did not check the website or her email regularly. She got a lot better this semester. So I guess everybody's time for technological adjustment is different.

When talking about going back to China for vacation, Gu was certain that she might experience culture shock again. She shared, "I will go back to China this summer to visit my grandparents. I am so used to the American style now. So I guess I need some time to adjust to the Chinese culture again."

Na

Na viewed herself as a very independent person. Therefore, she claimed that she spent little time in adjusting to the new environment. She identified the biggest obstacle for her at first was English, especially the new English terms in her major. She could not follow the professor's fast speed during class. Thanks to technology, she built up a connection with the professor. She was active in seeking professor's assistance via email. At the same time, she read her books thoroughly and used technology when necessary. She shared:

> I did have the urge to improve my English until I sat in the classroom and could not catch up with what the professor said for the first class. Therefore, I always asked the professors for further explanation and assistance after class. Sometimes the professors answered my questions via email. If I still could not get it, I would turn to textbooks or online resources (Chinese and American websites) for solutions.
>
> In addition, technology offered a variety of ways for her to communicate with people.
>
> Technology allows me to use my way for communication. I am active in getting to know new people. But when I have group project with American classmates, I like to use emails and other online platforms for collaboration. In that case, I could have time to reflect on my thoughts and express them in more accurate English.

Na confirmed that technology facilitated her with the acculturation process in her university. She described American technology as being "widely used and easy to learn." Even though she did not mention how she felt she had adjusted to the American society, she believed she was confident in learning new technologies and new cultures in the future.

In the narrative data above, participants described their acculturation to their campus life and the American society. In general, technology speeds up their acculturation process.

Technology, as described by the participants, is related to their expanded social connection, improved communicative competence, higher learning efficiency, more objectivity and flexibility toward different values and lifestyles, as well as increased confidence in using technology, meeting new people, and being open to new experiences. Technology contributed to the participants' stronger sense of community and security in living in a different society.

Summary

Chapter IV presented the data collected from ten Chinese international students to answer four research questions regarding Chinese students' technology experiences in America. The narratives of the students provided detailed descriptions on their technology experiences. These narratives also provided students' reflections on how technology influenced their technology self-efficacy and acculturation into the American campus. In Chapter V, the data will be summarized and discussed to answer the research questions. Recommendations for future educators and research will be made.

CHAPTER V

SUMMARY, LIMITATIONS, AND RECOMMENDATIONS

This chapter summarizes and discusses this study's findings. The purpose of this study was to describe Chinese students' experiences of using educational technology in American universities. The study explored Chinese students' experiences with educational technology in America and their reflections and interpretations on these experiences. Therefore, a phenomenological study was deemed most appropriate as it centers on the concreteness of the experience, as well as the consciousness on that experience (Moustakas 1994; Van Manen, 1990). In particular, Seidman's (2013) three-interview approach was utilized to present participants' technology experiences, as well as their interpretations of the phenomenon. Conducting three interviews allowed the stories of Chinese international students using educational technology in American universities to be shared with their American peers, educators, and programs that work with international students.

With criterion-based sampling and snowball sampling, the study recruited ten Chinese students to participate in the study by completing three in-depth, semi-structured interviews. Through these interviews, the following questions were examined:

1. What are perceptions of Chinese students regarding educational technology in China and in the United States?

2. How do Chinese students describe their educational technology experiences in the United States?

3. How does the educational technology use in America influence Chinese students' technology self-efficacy?

4. How do Chinese students describe the role of educational technology in their acculturation in the United States?

This chapter starts with a summary of this study's findings. Results are summarized around each question. Then, this chapter presents the discussion of the findings. Next, recommendations for future educators and research are provided. The chapter concludes with a summary on the findings and implications of this study.

Summary of Findings for Research Question 1 – Chinese Students' Perceptions on Chinese and American Educational Technology

This research question examined Chinese students' perceptions on the similarities and differences in Chinese and American educational technology. The interview questions seek to gain participants' comparison around four aspects: hardware, software, and technological support, beliefs/preferences and practices of technology. Beliefs/preferences and practices will be integrated in the discussion of hardware, software and technological support to avoid overlapping discussion.

Similarities and Differences in Educational Technology Hardware

The participants overwhelmingly described more similarities than differences in educational technology hardware in China and America. Regarding hardware accessibility, all the participants listed a number of similar hardware in classrooms and around campus, such as computers, projectors, printers, and iPads. In addition, they reported that the hardware served the same purpose of facilitating with teaching and learning in China and America.

Some participants mentioned that a number of new hardware was offered in their American universities including clickers and Smartboard. However, participants did not have a

hard time learning new hardware. In addition, multiple participants expressed their faith in the fast development of educational technology hardware in China in the near future.

Similarities and Differences in Educational Technology Software

In this study, educational software includes the installed software on computers or personal devices and online platforms and resources. In addition, it includes the practices of using software used for educational purposes. According to the participants' description, the availability as well as the functions of a number of educational software, was similar in China and America. These technologies include Microsoft Office (Word, PowerPoint, and Excel), library online database, SPSS, web 2.0 tools such as emails, blogs, and online resources (e.g. videos, news, articles, and other sources of information). In addition, participants described similarities in professors' choice of software, such as PowerPoint slides, word documents, online videos, pictures, and articles. In both countries, there are more professors who preferred using the basic functions of some software, yet there were fewer professors who were enthusiastic in technology integration.

When asked to expand their different experiences and perceptions on the differences in educational technology software, all participants had much to share. The participants spoke collectively of three differences below.

New and updated software available in American universities. Participants regarded American educational technology as "advanced." They came across some new and updated software that they had never used or heard of before. Students listed a number of new software including virtual storage and software designed for specific majors. New software also included those technologies that students knew in China but learned again for new features (e.g. Microsoft Excel) in America.

Extensive integration of technology in American higher education. All the participants described how educational technology was integrated into every aspect of their study. They all confirmed that the extensive integration of educational technology brought them great convenience in their study and campus life. A few participants further noted that they could not function in school without technology. On the contrary, educational technology use in China was described to serve very limited purposes: students could finish their learning tasks without using technology. Therefore, Chinese professors and students did not view educational technology as important when compared to the American context.

Differences in Web 2.0 tools. Most participants were not familiar with American Web 2.0 tools when they were in China because many of these tools are blocked in China. Participants in China used different Web 2.0 tools and they continued to use them after they came to America. However, all participants described American Web 2.0 tools as easy to use because they resemble the similar features in Chinese Web 2.0 tools.

Web 2.0 tools being used as educational technology. It should be noted that most participants did not categorize social media and a few Web 2.0 tools as educational technology when these participants shared their previous educational technology experiences in China. In contrast, participants included social media and some Web 2.0 platforms when talking about American educational technology. Every participant described his/her experiences of using certain Web 2.0 tools for learning purposes.

People's awareness on the difference in Web 2.0 tools. According to participants' descriptions, most American professors and students were not aware of the differences in social media and some web 2.0 tools between China and America. However, once they became aware,

these Americans were willing to provided help and guidance to Chinese students. Participants did not speak of obstacles or frustration in learning and communication as a result of their ignorance of American social media platforms and Web 2.0 tools.

Differences in the Chinese and American university websites. Students found American university websites were a) more open with resources and information, b) more interactive and easier to use, and c) student-centered and less authoritative than those in China. Participants gained their insights on the differences in the process of using university webpages, university emails, university web portals, and LMS. Regarding university webpages, participants described Chinese university websites as "authoritative," "one-way communication," and "less informational." On the contrary, American university websites were described to be student-centered and offering a great amount of information. In addition, all participants used American university emails, web portals, and LMS for learning, but only a few participants reported their availability in Chinese universities. In terms of university emails, participants described the importance of checking their university emails every day. University emails in America play a much more important role in communication and delivering information, which are vital to participants. In comparison, most participants used their emails for personal communication in China. In summary, the university websites in America are described to be more powerful in providing information, interacting with students, and engaging students in their university communities.

Differences in professors using educational technology. The participants discussed four major aspects/themes when comparing Chinese and American professors in using educational technology: frequency of educational technology use, educational technology variety, knowledge and skills of using educational technology, and purposes of educational

technology integration. In other words, American professors used educational technology more frequently, especially after class. While it is not always the case, American professors generally had a better knowledge base and skill set when using a variety of technology for teaching and learning purposes. Lastly, the purposes of professors integrating educational technology in China, as stated by the participants, were for efficient content input. American professors, on the other hand, used educational technology for information (such as content and class updates) input and communication. Despite the differences, some participants stated that most professors in China had achieved their teaching purposes. Therefore, no participants expressed their dissatisfaction towards Chinese professors' limited usage of educational technology.

Differences in students using educational technology. Participants described a few differences between Chinese and American students in using educational technology. Compared with Chinese students, American students seemed more comfortable to use technology in class and more familiar with technological resources. In addition, some participants explained that American and Chinese students had different technological preferences when it came to collaboration. The preferences are related to participants' technological habits formed by their past experiences as well as cultural differences.

Similarities and Differences in Educational Technology Support

Regarding educational technology support, participants identified more sources of technology support in American universities than in Chinese universities. In China, participants could rarely get technology support from their departments or universities. Therefore, when technological issues occurred, they needed to resort computer companies, third party "computer clinics," their friends and classmates for help, or deal with the issue by themselves. In America, all the participants were able to get technological support within the campus. The technology

support center, library, teaching assistants in the departments and professors were mentioned to be good sources for technology support.

The above summary presents the data collected to answer the first question on Chinese students' perceptions on Chinese and American educational technology and their perceptions on the similarities and differences. In general, participants reported fewer differences in educational technology hardware and more differences with the educational software and support.

Summary of Findings for Research Question 2 – Chinese Students' Descriptions on Educational Technology Experiences in America

For this portion of the study, participants were asked to detail their educational technology experiences in America. The experiences participants shared did not vary much from one to another. They all described positive experiences using educational technology in America. Three themes emerged from the interviews: a) educational technology accelerated students' learning, b) educational technology supported social connection with American students and c) educational technology made campus life easier and more convenient for international students.

Educational technology Accelerating Students' Learning

Participants were consistent in confirming the importance of educational technology in learning. According to the participants, educational technology improved their learning efficiency, expanded the range of course offerings and learning materials, raised their awareness of academic integrity, and enabled participants to be flexible with their learning schedule and styles which further supported participants' autonomous learning.

Educational technology Supporting Social Connection

All participants described their experiences of collaborating with their classmates on group projects via educational technology. During the process of face-to-face and online discussion and

communication (for instance, on the LMS discussion board), participants and their classmates from other countries achieved deeper understandings of each other. Their communication and friendship then expanded to social media or other platforms, including Facebook, Messenger, LinkedIn and WhatsApp. They gradually switched from academic discussions to daily chats. As one participant described, after his recommendation, a few of his American friends installed WeChat, the Chinese instant message application and were interested in learning Chinese from him.

Educational Technology Promoting Easier Campus Life for Students

All the participants listed several educational technologies that had made their campus life easier. One major theme that emerged is the universities, departments, professors, and classmates kept participants updated with information closely related with their study and lives. Students shared their experiences receiving university emails regarding class change, workshops and seminars, department and university events, and policies about international students or the university. Among all the technologies, email was the most frequently mentioned one to deliver important information. Lin noted that university emails built up a connection between students and different departments in the university. These emails helped students become more aware of the resources and opportunities around campus. In addition, the participants were also able to get in-time replies when they proposed questions to the professors and staff from different departments. The close communication between participants and the university provided an informative and convenient learning and living environment to the participants.

When asked about the negative educational technology experiences, seven participants mentioned experiences such as computers crushing, insufficient knowledge about new

technologies and forgetting to check emails. However, they expressed that these negative experiences did not cause any long-term negative consequences.

Summary of Findings for Research Question 3 – Chinese Students' Perceptions on Their Technology Self-Efficacy

This research question sought to examine Chinese students' perceptions on their technology efficacy after they came to study in America. The first theme that arose during the interviews is that participants' technology self-efficacy improved in America. Participants described their increased confidence in using technology for academic purposes, as well as learning new technologies in the future. The following section describes the second theme that emerged: sources of technology self-efficacy.

Previous Technology Experience

Among all the participants, only one described herself as a "novice user" in technology before she came to America. The rest of the participants all used some technologies in China that were similar to those in America, such as Microsoft Office and emails. As one participant elaborated, "Technologies here are not very different from the technologies I previously knew… new features are not hard to learn."

External Technology Support

External technology support came from friends, classmates, professors, and technology support centers in participants' universities. Six participants described their experience of asking for external technology support due to technology issues. They were all able to get support in a timely manner. Four participants expressed that they had not dealt with any technology issues so far. They also believed if technology issues occurred, they would first search for online resources for solutions, and they were aware of where to ask for technology support. All the students

shared that the availability of technology support provided an environment where technology is welcomed and encouraged.

Technology-Integrated Learning Environments

All participants stated that in America they have more frequent access to educational technology. The technology-integrated learning environment pushed participants to form habits of integrating a variety of technologies in their learning. Six participants claimed that due to the regular practice of using a few technologies, they were able to adapt to the technology environment faster. One student mentioned that their professor would give extra points to the essays that had been revised by the Writing Center tutors, either through face-to-face tutorials or online editing tutorials. The encouragement and support from technology-integrated learning environments offered participants more opportunities to practice their technological beliefs and skills. Consequently, their technology self-efficacy increased as their technology competence improved.

User-Friendly and Learner-Centered Educational Technology in America

Seven participants reported that while some educational technology in America were new or different from those in China, they were easy to learn and master because they were designed to be user-friendly. Generally, it took participants a week to a month to adapt to their technology environment. In addition, a few participants described educational technology in America to be learner-centered. For instance, university websites provided abundant information and resources for participants from registration for classes to university events; technology support centers offered in-time support to participants in need of help in fixing technological issues; and, departments, such as Writing Centers, provided services such as online reservation and online editing to better serve participants. According to the participants, user-friendly and learner-

centered educational technology helped participants with an easier start with study and life in America and assisted them with faster accumulation of technology self-efficacy.

Accessible Online Tutorials and Resources

All participants described their experiences of using online tutorials and resources for learning and living in America. Some participants confirmed that online resources, such as online sample cases and YouTube videos, deepened participants' understanding of subject matter. Some participants expressed that online resources broadened their view on American culture. When it came to confusions or issues regarding technology, four participants indicated that they always checked online first for solutions. Two participants were able to rent apartments and find a roommate online. Numerous online tutorials and resources empowered participants with greater competence in finding information and solving problems. They further enabled participants to be more independent and flexible with their learning and living in America.

Overall, participants were consistent in confirming the improvement of their technology self-efficacy. Many participants expressed their willingness to learn new technologies in the future.

Summary of Findings for Research Question 4 – Educational Technology and Chinese Students' Acculturation in America

For the last portion of the research, participants were invited to speak of their acculturation process in America, as well as their perceptions on the role that educational technology played in the process of acculturation. Acculturation is "the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members" (Berry, 2005, pp. 698-699). Participants referred to acculturation as to acculturation to the educational technology environment, as well as American campus life. Many

participants were not certain if they could be able to adjust to the American culture, yet, all the participants stated that they were acculturated into the American educational technology environment and campus life. All participants confirmed the importance of technology in the process of acculturation. For many participants, educational technology was an icebreaker for Chinese students and other students to communicate. For some participants, technology created a sense of security for them because they were closely connected with professors, classmates, and university by technology without being left out with important information. The close connection with the university instilled participants with a sense of belonging to the community, which facilitated the participants' acculturation process.

Discussion

With the data analysis, the importance of using educational technology in America became increasingly evident. This section will discuss the most important themes that emerged from the interview data relating to educational technology in America. Four major themes developed in Chapter IV provided meaning and understanding to the participants' experiences and perceptions. The themes will then lead into the recommendations of this study for the personnel, universities, and agencies who are working with Chinese international students.

Educational Technology Similarities and Differences

Previous literature supported the results of this study in the similarities and differences in Chinese and American educational technology. Similarities discussed in this study were in accordance with previous literature, such as increasing investment in hardware and software updates (Fan, 2014; Li, 2013; Yang, Xu, & Shao, 2012) and integrating Web 2.0 tools in education (Liang et al., 2014; Xu et al., 2015; Zhai & Liu, 2007). Some differences in educational technology were consistent in the previous literature and this study, such as limited

use of LMS in China (Hu, 2005; Liu, 2010; Tian & Lian, 2008; Weaver et al., 2008; Yi, 2015) and different Web 2.0 tools in the two countries (Clayton et al., 2014; Graham, 2014; Junco et al., 2011).

Technology support. Among all the differences, technology support for international students is one aspect that did not receive enough attention in the previous literature. Little research has been found on the comparison of technology support Chinese students get from universities. According to the study, participants received more external resources for technology support in America than in China. The reason is due to the different functions that technology centers in Chinese universities serve. In Liu, Lv, and Kang's (2010) article on educational technology in China, they claimed that the educational technology centers in Chinese universities or colleges were independent organizations. Their central duties were to provide educational resources for teachers and cultivate the knowledge and ability of teachers regarding educational technology. This statement is confirmed by participants' description on inadequate technology support from Chinese universities.

Cultural differences in using technology. Collis (1999) stated that culture is a critical factor in influencing how people accept, respond to, and use the Internet. This study found a few educational technology differences that are associated with cultural differences.

Differences in university using educational technology. Liu et al. (2010) described that one of the features in Chinese education is forceful executive management. Its purpose is to achieve task goals swiftly and effectively in a shorter time and on a wider scale. They noted that as one of the important components of education, educational technology shares a similar management mechanism. Educational technology in China is operated by the university and mainly serves faculty and staff teaching and administrative purposes. This situation is evident in

the current study when participants revealed that their Chinese university websites were not student-centered. In addition, participants did not receive enough technology support from the Chinese university.

Individualism versus Collectivism between America and China is reflected in the different ways of communication between students and the university. In America, from the university level to the classroom level, educational technology stresses students' individual needs and promotes each student's development. Educational technology supports communication between the university and each student. In China, educational technology builds up connection between the university and a group of students. Educational technology in China emphasizes information delivery, rather than creating communication and interaction with students (Jing et al., 2014). This is reflected in participants' description of their Chinese university websites: "irrelevant information," "authoritative," or "one-way communication."

Differences in professors using technology. Educational technology in China is employed to deliver content and information faster, rather than for collaboration and communication, a key point that was also made by Jing et al. (2014) who described that educational technology in Chinese higher education focuses on using technology to facilitate with learning knowledge and content. Similarly, Li and Ni's (2010) study claimed that educational technology in China was more catered to teacher-centered purposes rather than student-centered activities. This cultural characteristic was revealed when participants reported that Chinese professors used basic features of technology to teach. On the contrary, educational technology in America is more learner-centered. Professors used a variety of technology for teaching content, organizing discussions, providing feedback and sharing resources.

In Chinese classrooms, teachers hold a higher position in the hierarchy of power and are viewed as the authority (Zhao & McDougall, 2008). The content that teachers taught is viewed as most authoritative and essential to students. This culture is reflected when students described their Chinese professors' reluctance in sharing PowerPoint slides and online resources. In the American classrooms, professors are not viewed as the only authority that represents knowledge. They work with students together to create a collaborative atmosphere. Therefore, American professors are more willing to share information and online resources.

Differences in student's preference of educational technology. This study found Chinese students prefer certain educational technologies under different circumstances. The tools themselves are neutral (Pfeil et al., 2006), but cultural differences affect students' preferences, attitudes, and choices towards technology are influenced by their culture (Li & Kirkup, 2007; Liu et al., 2010; Pfeil et al., 2006; Wang & Sun, 2007; Xu & Mocarski, 2014; Yoo & Huang, 2011).

In this study, several participants described their preference of using email to face-to-face communication (in real life or online) when communicating with professors. Their explanations include: "I don't want to ask dumb questions," "asking professors questions in the face is not being polite," "if I Skype with my professor, I could see his background in the house, which makes me feel informal," and "I feel more confident in my written English than my spoken English." Chinese students respect teachers as authority and they highly value teachers' opinion on them. Therefore, Chinese students' choice of technology reflected their respect for teachers. Educational technology that do not engage instant and face-to-face conversation make participants feel more comfortable and less intimidated by professors' authority. This finding is in agreement with Zhao and McDougall's (2008) study in which the researchers found the instructor's authoritative image is a cultural factor that affects students' online learning. Another

reason for participants' preference for emails is that, as learners of English as a foreign language, Chinese students try to avoid misunderstandings caused by inaccurate English. Emails gave participants enough time to reflect and articulate their thoughts.

When they communicate with their American classmates and friends for academic purposes, such as group projects or online discussion, Chinese students also prefer educational technology that does not engage instant and face-to-face conversation. One participant mentioned that he would choose WeChat (supporting instant audio and video messages) if the team members were all Chinese students, but Facebook or email when the group included American classmates. Yoo and Huang (2011) found differences in technology preferences are connected with cultural differences in terms of uncertainty avoidance tendencies. Platforms such as social media and emails offered Chinese students time and space to reflect on their thoughts and polish their language to avoid any uncertainties and misunderstandings.

Positive impact of educational technology's similarities and differences. Previous studies show that prior experiences with technology could influence an individual's future use of newer technology (Lee, Kozar, & Larsen, 2003; Varma, 2010). Varma (2010) stated that if students are high in computer proficiency, they are likely to perceive future technology implementations more positively. The present study partly supports these findings in that previous experiences of using similar technologies could enhance students' ability of using new technologies.

In addition, this study revealed that students' prior technology experiences in China (of using either similar or different technologies) did not impact students' consequent level of technology acceptance in the same way. While some participants believed themselves as "technology savvy," and some described themselves as "novice technology users" in China, all

the participants in this study were positive in learning new technologies in America. All the participants regarded educational technology in America as "advanced," "extensively integrated into learning," or "easy to use." Many participants expressed their motivation and curiosity towards learning new technologies in America.

The results indicate that despite their prior technology experiences, students can have a higher level of technology acceptance when: 1) new educational technology is designed to be easy to use, 2) new educational technology is useful and offers students a more convenient and efficient way of learning, and 3) students get enough external technology support. These factors can narrow the educational technology gap between China and America, which made students' adjustment to the new educational technology environment faster.

Factors causing negative impacts on students' study and learning in America. Participants did not view technology differences between China and America as one factor that negatively impact their study and living in America. As many participants indicated, they could not think of any negative technology experience in America if not for this study. The biggest obstacles for Chinese students in America, as noted in the interviews, are still language and cultural differences. Numerous previous literature addressed language and cultural differences as key elements associated with adjustment issues experienced by international students (e.g. De Araujo, 2011; Nilsson et al, 2008; Sümer, 2009). Nilsson et al. (2008) reported that international students studying in a different country is a process of learning to function academically and socially in a new language and culture while adjusting to the loss of familiar coping resources (Nilsson et al., 2008). Compared with the major difficulties faced by international students, the inconvenience caused by leaning new technologies does not compose a major obstacle for Chinese students.

Sources of Technology Self-efficacy

Technology self-efficacy (TSE) in this study refers to the students' belief in their ability to successfully perform a technologically sophisticated new task using hardware and software, as well as technology-related platforms and support. This study found that after studying in America, participants' technology self-efficacy improved in using hardware, software, and technology support. The participants expressed their confidence in dealing with technological issues and learning new technologies in the future.

Three major sources of technology self-efficacy emerged from the data. The three sources were discussed in Bandura's (1977) study: performance outcomes/mastery experiences, vicarious experiences, and verbal persuasion.

Performance outcomes/mastery experiences. Due to their previous experiences of using some similar educational technology in China and America, participants felt more comfortable and confident when using familiar technology. They were able to adapt to the American technological environment faster. Students who described themselves as "technology savvy" showed greater confidence in learning new technologies. This finding is evident in Verma (2010) study, which indicated that previous computer experiences can influence students' new technology acceptance.

Vicarious experiences. All the participants described the extensive integration of technology in their learning. Even though some technologies were new to the participants, such as LMS and web portals, they had to use them every day. New habits of educational technology use and practice were reinforced every day.

By observing their professors' and classmates' modeling of technology use (such as collaborating on Google Doc) and their sustained effort in practice, participants became familiar

with new technologies faster and felt more confident in their technology competence (Brinkerhoff, 2006; Torkzadeh & Van Dyke, 2002).

Verbal persuasion. Participants described their increased sense of belief in their technology self-efficacy, after receiving verbal explanation and encouragement from students' professors, classmates, and personnel from the technology support center. Many participants described their experiences of getting encouragement and technology assistance from their classmates during their collaborations. The explanations created a sense of care and faith in the participants, which boosted their technology self-efficacy and promoted development of skills (Bandura, 1986).

In this study, two participants described their caution of using technology because of possible over-reliance on technology. But most participants did not provide information on physiological feedback as a source of technology self-efficacy (Bandura, 1986). However, this study found a few factors contributing to the improvement of students' technology self-efficacy.

User-friendly technologies. Most participants described the new technologies in America as "easy to learn and use." Therefore, it did not take participants much time to adjust to new technologies. This finding is consistent with Verma's (2010) identification of two key determinants of intentions to use a technology: usefulness and ease of use of technology. When technologies were designed to be learner-centered and easy to learn, students should feel less pressured and become more willing to practice using them. Gradually, positive vicarious experiences will heighten their level of technology self-efficacy (Compeau & Higgins, 1995; Smith et al., 2004).

Technology-integrated environment. According to Verma's study (2010), usefulness is another key determinant for students to use technology. In a technology-integrated environment

where technology is essential, participants need to exhibit sustained effort in using technology. From finishing assignments to communicating with professors and classmates, participants became more aware of the importance of using technology on a regular basis. Meanwhile their confidence increased due to improved technology skills.

Numerous accessible online tutorials and resources. Access to abundant online resources enables students to study and live independently yet feel supported. This finding is evident in a number of research, which indicated that access to resources influence students' technology use and their technology self-efficacy (Lai, 2015; Wang, Shannon, & Ross, 2013).

Acculturation into American Universities: Educational Technology Facilitating with Integration

This study found technology plays an important role in Chinese students' acculturation into American universities and American life. The finding aligns with the results of previous studies on technology and international students' acculturation (Wang, 2006; Yang, 2016; Yang et al., 2004). Specifically, this present study reveals three major aspects of educational technology that accelerated Chinese students' acculturation process.

Adaptation to American style of using educational technology. During the process of dealing with educational technology differences, Chinese students gradually become more Americanized in valuing the significance of educational technology and forming habits of integrating technology into learning. The following examples indicate some of the participants' Americanized changes in using educational technology:

- Social media is no longer viewed simply as a platform for personal entertainment, but a tool for fulfilling academic purposes;
- Participants began to check university websites and emails regularly;

- Textbooks and notes from class were no longer the only source of information that students needed to rely on to finish their assignments. In America, students learned to resort to online resources for their assignments;
- While students finished most of their assignments in the written form in China, they learned to submit their electronic assignments via LMS or email in America.

In general, the students' change in their technology beliefs and habits paved the way for their efficient learning and easier stay in America.

Educational technology for starting and keeping social connection. This study found that educational technology served as an icebreaker and a tool for Chinese students' connection with other people and the environment. According to the participants, educational technology opened their communication with their classmates due to collaboration on group projects. On LMS, Google Doc, and social media, the participants discussed assigned topics, shared ideas and resources, and even argued over an issue. The conversations deepened their understandings of each other and developed friendships after class (Commander, Zhao, Gallagher, & You, 2016). Since acculturation is based on communication, or the exchange of messages (Kim, 2000), Chinese students became more acculturated in America by expanding their social network via technology.

Participants also described close connections with professors, their department and the university via technology (especially university website and email), which gave them a stronger sense of community in American universities. Kim (2000) explained, "As long as the individual stays in contact with that environment, adaptation will naturally transpire" (p. 32). The information and support Chinese students received online help them solve academic problems and gave them a better idea on how to study and live in the university. Ye (2006) found even the

weak online social network can function as importance sources of new information. Furthermore, close connection with other people improved Chinese students' communicative competence, which encouraged them to meet new people and make new connections.

Educational technology kept students updated with information outside of the campus. Students described their experiences of listening to radios and TV news, watching online videos and reading online resources. As they received information from other sources outside of the campus, Chinese international students had a better understanding of American culture.

In Zhadko's (2011) study, the international students reported that access to technology and use of technology for school purposes helped them adapt faster to college life in America. Yang (2016) also noted that mobile devices served as searching tools, social tools, information providers, presenting tools and capture tools, which support Chinese students to solve the difficulties with communication, self-efforts, finding references and critical cultural thinking. This present study confirmed the above finding. In addition, this study found educational technology helped Chinese students with a faster and easier acculturation process into college life in terms of changing their educational technology beliefs and habits as well as supporting social and informational communication.

Strategies in Chinese students' acculturation process. All the participants confirmed that they were acculturated in the college life in America. According to Berry (1997), cultural groups may "choose to adopt any one of four strategies – assimilation, separation, integration, or marginalization – as they determine how best to acculturate in different settings and situations" (p. 9). This study found that, regarding acculturation in the American educational technology environment and American college life, Chinese students adopted integration strategies in most situations.

Integration refers to the strategy of maintaining both the original and host cultures in a host country (Berry, 2006). In this study, participants were able to maintain both Chinese and American ways of using educational technology. Participants described their willingness, confidence, motivation, and even excitement while learning new technologies in America. They enjoyed the great convenience and high efficiency American educational technology had brought them. Meanwhile, they kept their original habits of using educational technology, such as asking professors questions via email after class instead of face to face, using Chinese online resources to finish assignments, and connecting with family and friends via Chinese social media. These findings indicate that when beliefs and habits concerning a phenomenon do not present distinct differences between the original culture and host culture, it is easier for the minority group to integrate the beliefs and habits from both cultures.

In terms of acculturation in American college life, participants also adopted the integration strategy most of the time. All the participants shared that they enjoyed their stay in America and believed they had acculturated into the American college life. Participants kept most of their original habits of learning and living, and they stayed in close connection with their Chinese family and friends. They held onto many of their previous technology preferences and choices. In the meantime, they tried to adapt to the American universities. Participants described that they worked hard in their studies and were active in learning new cultures, meeting new people, and participating in university events. As one participant pointed out, embracing two cultures made him more flexible in switching back and forth between two habits and values.

Overall, all the participants sought to integrate Chinese and American living styles together, and they held optimistic attitudes towards their future studies in America.

Relationship Among Technology Experience, Technology Self-efficacy, and Acculturation

Rooted in Social Cognitive Theory, this study found a close relationship among technology, technology self-efficacy, and acculturation. Technology as an environmental factor can change students' personal factors and their behavior (Cheung & Slavin, 2013; Qian, 2008). In this study, Chinese students' experience of using educational technology improved their technology self-efficacy, and speeds up their acculturation process (Figure 3).

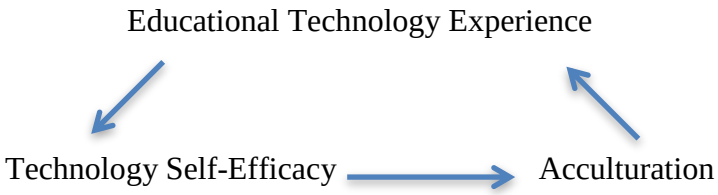

Figure 3. Relationship among technology experience, technology self-efficacy, and acculturation.

This triangular system of influence indicated three one-directional influences: a) Chinese students' positive educational technology experiences, such as access to easy-to-use technology, extensive technology integration in learning, abundant online resources and technology support from external resources, improved students' technology self-efficacy; b) positive educational technology experience accelerates Chinese students' learning, supports their social connection, and promotes an easier campus life, which speeds up Chinese students' acculturation process; and c) improved technology self-efficacy makes students feel more comfortable in technology integration and new technology acquisition, thus leading students to easier acculturation in an American educational technology environment.

Limitations

The current study encountered a few limitations. First, as a Chinese international student studying in America herself, the researcher attempted to minimize any bias. The researcher bracketed personal assumptions during the interviews and data analysis by writing down

reflective notes of her own technology experiences before the study and keeping memos and notes in a reflective journal during the interviews. However, as in all other qualitative studies, it is inevitable that a small amount of personal assumptions may be involved during the process.

Secondly, the interviewees in this study consist of seven graduate students and three undergraduate students. This study would benefit from a more balanced representation of undergraduate and graduate students.

Thirdly, the study was administered in either Chinese or English depending on participants' preference for the language. But sometimes the participants would mix English and Chinese together during the interview. The meaning may not be fully expressed by participants speaking English since English is a foreign language to Chinese students.

Finally, in this study, participants' family and social-economic backgrounds in China were not taken into consideration. This information may be important in explaining participants' original habits of using technology.

Recommendations for Universities Providing Technology Support to Chinese Students

Colleges and universities play an important role in helping international students successfully overcome various adjustment challenges and adapt to the American society (Gulliette, 2007). Colleges and universities have an obligation to "welcome, serve, retain, and involve international students" (Hammons et al., 2004, p. 26). In the process of acculturating to the educational technology environment in America, Chinese students need understanding and support from the university, department, and educators. Though participants in this study described many positive educational technology experiences in America, additional efforts are still needed to better meet Chinese students' technology needs.

Recommendations for the International Student Services Offices

The numerical growth of international students in America and the commitment of many higher education institutions to further increase their student populations create "complex demands on college and university service personnel in support of students from around the world" (Hammons et al., 2004, p. 26). International Student Services Offices (ISS) function as the headquarters for immigration guidance, academic resources, cultural connections, and social events for international students. Samaha (1997) identified four key issues that need to be addressed by international student services offices: academic, legal, economic, and social. This study indicates that, to better serve and involve international students, ISS should view educational technology as another issue that should be addressed early in the semester.

Participants shared their expectations for ISS to address the importance of educational technology and introduce the basic educational technology in the university during the orientation at the beginning of the school year. Most participants reported that they heard of some technologies around the campus during orientation. However, most ISSs did not mention the importance of forming necessary technology habits in the new environment. Therefore, ISS should bear in mind that Chinese students may hold different attitudes and beliefs towards educational technology. ISS should take the opportunity of orientation to demonstrate to international students on how to use certain technologies to get started with their university lives. In addition, ISS should stress the importance of integrating technology in learning and living on campus, such as reminding students to check their emails daily.

Many participants suggested that a series of educational technology workshops should be available to discuss topics such as university websites, features of LMS, and social media in America. One student mentioned the need for learning English slang on social media.

Participants' descriptions reveal the need for integrating educational technology workshops into orientation or early in the semester. ISS could partner with a university's IT support center to provide in-depth lectures or demonstration on the most essential technology in the university. Available resources of technology and technology support around the campus should be shared with international students early in the semester for their reference in the future.

Many participants expressed the need for providing technology orientations for Chinese students specifically because students from other countries such as Japan and India exhibit higher technology competence. The participants hoped that the universities would be aware of the technology differences between China and America. Therefore, the study recommends a survey on international students' knowledge and use of educational technology at the beginning of the semester. The survey can be designed to explore issues such as educational technology availability in students' native countries, students' most used technologies, and their knowledge about American educational technology. If possible, follow-up investigations should be carried out to examine students' technology needs that emerge during the semester. The survey will enable ISS to get a better understanding of Chinese students' needs for educational technology support so as to better serve and involve them in the future.

Lastly, ISS should strive for building up real-life and online communities for international students to build up their social network. It is found that international students adapted to new social and academic environment more easily with the support of diverse social networks (Forbush & Foucault-Welles, 2016). ISS can promote intercultural contact on campus by pairing each international student with a student or volunteer from America or another country (Campbell, 2012; Volet & Ang, 2012). In that case, Chinese students obtain academic or technological support from peers in the crucial first few months of their study in the new

environment (Campbell, 2012). Cultural events or online forums held by ISS will also provide opportunities for international students to connect with each other and with American students.

Recommendations for Educators

In addition to ISS, departments and educators share the responsibility of providing technology support to international students. Departments and educators working with international students should hold strong cultural sensitivity to the students' native culture. In the case of this study, departments and educators should explore the differences in educational technology between the students' native country and host country. The department can organize a brief orientation introducing available technology resources and support in the department. Informal interviews or talks between advisors and international students on their technology use would also inform the department of students' technology habits and preferences.

Professors, as most participants described, are the major source of introducing new technologies and reinforcing technology practices. Based on the findings from the current study and previous literature, five recommendations for professors supporting Chinese students' positive technology experience in America are proposed below.

Demonstrations, in-depth explanations, and vicarious practice opportunities needed for teaching new technologies. Participants in this study described learning many new technologies from their professors. It is indicated that professors' demonstrations of technology and students' vicarious practices of using technology improve students' technology self-efficacy. Therefore, when educators integrate technology in teaching, they should first be prepared for Chinese students' possible ignorance of certain technologies, including technologies for academic purposes (such as LMS) and communication purposes (such as email or social media). The students will then need professors' additional in-depth explanations or demonstrations on

using certain technologies, especially the advanced software related to their major. Professors should also increase the opportunities of engaging Chinese students in technology-integrated learning activities to reinforce their technology practice. Sufficient demonstrations, in-depth explanations and vicarious practice of technology would boost students' technological self-efficacy (Bandura, 1986; Brinkerhoff, 2006) and improve their technology competence, which can help them adapt to the American university life.

Sharing technology resources. Since Chinese students are not familiar with available technology platforms and resources in America, professors have the responsibility to share important resources with the students. The resources include online resources of content knowledge to supplement learning such as articles and cases, Web 2.0 learning tools that students were not familiar with such as Dropbox and Turnitin, and social media such as LinkedIn and Facebook. This study found that some online learning tools are essential in promoting Chinese students' appropriate learning beliefs and habits. For instance, three participants mentioned that they appreciated their professors' introduction to Turnitin. By using this online tool, participants had a better sense of academic integrity and avoided many possible plagiarisms. As indicated in this study, the knowledge of abundant online resources empowers participants to form the appropriate study attitudes, promote their technology self-efficacy (Shamburg, 2004) and develop efficient and independent learning style (Lai, 2015).

Understanding Chinese students' language barrier. When English is a foreign language, exchanges between students, peers, and professors could be cumbersome (Dillon, Wang, & Tearle, 2007; Li & Rosson, 2012). Participants from this study described English as their biggest barrier in acculturating in America. Therefore, professors need to understand Chinese students' difficulty in understanding class content and face-to-face/online

communication. When it comes to introducing technology terms, especially those related to advanced software used in business or accounting, professors need to provide detailed explanations and consistent enforcement of practice to achieve students' optimal understanding. In addition, at the beginning of school year, professors should expect possible miscommunications and misunderstandings during email exchanges or online discussions with Chinese students. The reason is that Chinese students need some time to build up their English technology literacy during the frequent exposure to technology-integrated learning. Professors' patience, understanding, and in-time communication would gradually eliminate the language barriers between the professors and Chinese students, and build up students' communicative competence and confidence.

Understanding culture-related technology preference. Previous literature (Albrecht, 2016; Xu & Mocarski, 2014; Yoo & Huang, 2011; Zhao & McDougall, 2008) and this study show that cultural differences influence Chinese students' technology preference. For instance, this study found many Chinese students prefer asking professors questions via email to avoid challenging professors' authority and ensure language accuracy. One participant felt uncomfortable Skyping with her professor who worked from home since this participant viewed it as informal and less respectful for the professor. Professors and classmates should respect and understand Chinese students' culture orientation and their technology choice and habits. Communication with international students about their preferred technology platforms would give professors a general idea on how to enhance mutual understanding while giving the students freedom of technology choice.

Encouraging online social connection. This study found that, for many participants, online collaborations were an icebreaker for their communication with their American

classmates. Professors can design a variety of in-class group projects for Chinese and American students to collaborate and deepen their mutual understanding. After class, professors can work as a liaison between Chinese students and American students by creating online collaboration/discussion opportunities for keeping their communication. Online communities could be set up on LMS or other social media platforms to share resources, discuss a variety of topics, and leave feedback. Gradually, Chinese students would build up a larger and diverse social network, which is ideal for increasing their adaptation to America (Forbush & Foucault-Welles, 2016).

Recommendations for Future Study

This study explored Chinese international students' experiences of using educational technology in America. Based on the study's findings and limitations, as well as related literature, the researcher makes four recommendations.

First, a similar study should be conducted to study educational technology experience in other cultural groups, such as students from other countries or different economic groups.

Secondly, quantitative studies are recommended for examining the influence of educational technology experiences on students' technology self-efficacy. For instance, studies can be done to investigate the extent to which each source influences students' technology self-efficacy.

Thirdly, this study focused on the role of technology in Chinese students' acculturation in American universities, rather than Chinese students' acculturation in America. Future research calls for a study on the role of technology in international students' acculturation in American society.

Finally, Bandura's (1989) Social Cognitive Theory stated that personal, behavioral and environmental factors influence each other bidirectionally. This study only indicated one directional influence of technology experience on students' technology self-efficacy and acculturation which leaves an area for future research to continue. Researchers should examine the bidirectional influences of technology experience, technology self-efficacy, and acculturation.

Summary

The purpose of the phenomenological study was to explore Chinese students' experiences of using educational technology in America. The study further examined Chinese students' perceptions on similarities and differences in educational technology in Chinese and American higher education, the change in technology self-efficacy level, and the role of technology in their acculturation process. The results of the study revealed the following themes: a) despite the similarities and differences in educational technology between China and America, Chinese students' educational technology experiences in America are positive; b) educational technology in American universities accelerated students' learning, supported social connection and promoted easier campus life for students; 3) six factors were found to be associated with students' improved technology self-efficacy including: vicarious practice, mastery experiences, verbal persuasion, technology-integrated environment, user-friendly technologies, and abundant online tutorials and resources; and 4) students' positive experiences of using educational technology speeds up their acculturation process to American university life.

The findings of this study and the Chinese students' descriptions have value for both international student services personnel and educators. Participants in the study provided insights on the benefits that certain technology or ways of using technology could bring to international

students. They also provided information on the relation between technology preferences and cultural differences. This study calls for the university and educators to be more understanding and reflective on the technology differences experienced by Chinese students. Technology support from the university, departments, and educators will facilitate Chinese students into faster acculturation into American college life.

References

Adams, C. (2011). Learning management systems as sites of surveillance, control and corporatization: A review of the critical literature. *Society for Information Technology and Teacher Education International Conference*, (1), 252-257.

Albrecht, M. (2016). *Cultural influences on Chinese international students willingness to approach instructors online at a U.S. institution of higher learning*. Retrieved from ProQuest Dissertations & Theses Global. (Order No. 10141497)

Akbaş, O. O., & Pektaş, H. H. (2011). The effects of using an interactive whiteboard on the academic achievement of university students. *Asia-Pacific Forum On Science Learning & Teaching, 12*(2), 1-19.

Armijo, E. A. (2016). *A phenomenological study: A phenomenological exploration of the lived experience of practicing physical education teachers on the integration of technology in physical education*. New Mexico State University.

Association for Educational Communications and Technology (2008). Definition. In A. Januszewski and M. Molenda (Eds.), *Educational Technology: A definition with commentary*. New York, NY: Lawrence Erlbaum Associates.

Atebe, G. M. (2011). *An exploratory study on international students' adjustment to American universities.* Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3476402)

Baklashova, T. A., & Kazakov, A. V. (2016). Challenges of international students' adjustment to a higher education institution. *International Journal of Environmental and Science Education, 11*(8), 1821-1832.

Bandura, A. (1969). Social-learning theory of identificatory processes. *Handbook of socialization theory and research, 213*, 262.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development. Vol.6. Six theories of child development* (pp. 1-60). Greenwich, CT: JAI Press. Retrieved from http://www.uky.edu/~eushe2/Bandura/Bandura1989ACD.pdf

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W. H. Freeman.

Bandura, A. (2001). The changing face of psychology at the dawning of a globalization era. *Canadian Psychology, 42*, 12-24.

Bartholomew, S. R., Reeve, E., Veon, R., Goodridge, W., Stewardson, G., Lee, V., & Nadelson, L. (2017). Mobile devices, self-directed learning, and achievement in Technology and Engineering Education classrooms during a STEM activity. *Journal of Technology Education.*

Berking, P., & Gallagher, S. (2014). Choosing a learning management system. Advanced Distributed Learning (ADL) Co-Laboratories. Retrieved from http://www.adlnet.gov/wp-content/uploads/2014/12/Choosing-an-LMS-1.pdf

Berry, W. J. (1997). Immigration, acculturation and adaptation. *Applied Psychology: An International Review, 46*(1), 5-34.

Berry, W. J. (2005). Acculturation: Living successfully in two cultures. *International Journal of Intercultural Relations, 29*(6), 697-712.

Berry, W. J. *(*2006*).* Contexts of acculturation. *In* Sam D. L., Berry J. W. *(Eds.), The Cambridge handbook of acculturation psychology (pp.* 27-42*).* Cambridge, England*:* Cambridge University Press.

Berry, W. J., Phinney, J. S., Sam, D. L., & Vedder, P. (2006). Immigration youth: Acculturation, identity, and adaptation. *Applied Psychology, 55*, 303-332.

Birman, D., Simon, C. D., Chan, W. Y., & Tran, N. (2014). A life domains perspective on acculturation and psychological adjustment: A study of refugees from the former Soviet Union. *American Journal of Community Psychology, 53*(1-2), 60-72.

Black, B., & Lassmann, M. E. (2016). Use of technology in college and university English classrooms. *College Student Journal, 50*(4), 617-623.

Boche, B., & Shoffner, M. (2017). Connecting technology, literacy, and self-study in English language arts teacher education. In *Being Self-Study Researchers in a Digital World* (pp. 61-72). Springer International Publishing.

Boyd, D. M. & Ellison, N. B. (2007), Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*, 210–230.

Breitkreuz, K. (2011). Nursing students in a developing nation using the internet: A phenomenological study. *International Journal of Nursing Education, 3*(2), 56-62.

Brinkerhoff, J. (2006). Effects of long-duration, professional development academy on technology skills, computer self-efficacy, and technology integration beliefs and practices. *Journal of Research on Technology in Education, 39,* 22-43.

Brooks, R. (2015). International students with dependent children: The reproduction of gender norms. *British Journal Of Sociology Of Education, 36*(2), 195-214.

Burkholder, J. R. (2014). Reflections of Turkish international graduate students: Studies on life at a U. S. midwestern university. *International Journal For The Advancement Of Counselling, 36*(1), 43-57. doi:10.1007/s10447-013-9189-5

Butler, D., & Sellboom, M. (2002). Barriers to adopting technology for teaching and learning. *Educause Quarterly, 2*, 22-28.

Campbell, N. (2012). Promoting intercultural contact on campus: A project to connect and engage international and host students. *Journal of Studies in International Education*, *16*(3), 205-227.

Campbell, C., & Martin, D. (2010). Interactive whiteboards and the first year experience: Integrating IWBs into pre-service teacher education. *Australian Journal of Teacher Education*, *35*(6), 68-75.

Carrió-Pastor, M. L. (2007). Internet as a tool to learn a second language in a technical environment. *European Journal of Engineering Education, 32*(5), 599-612.

Cater, M., Davis, D., Leger, B., Machtmes, K., & Arcemont, L. (2013). A study of extension professionals' preferences and perceptions of usefulness and level of comfort with blogs as an informal professional development tool. *Journal of Extension*, *51*(4), 1-12.

Celik, V., & Yesilyurt, E. (2013). Attitudes to technology, perceived computer self-efficacy and computer anxiety as predictors of computer supported education. *Computers & Education, 60*(1), 148-158.

Chambers, D., & Coffey, A. (2013). Development of a mobile-optimised website to support students with special needs transitioning from primary to secondary settings. *Australasian Journal of Special Education, 37*(1), 79-91.

Chataway, C. J., & Berry, W. J. (1989). Acculturation experiences, appraisal, coping and adaptation: A comparison of Hong Kong Chinese, French, and English students in Canada. *Canadian Journal of Behavioral Science, 21,* 295-309.

Chatfield, A. J., Ratajeski, M. A., Wang, J., & Bardyn, T. P. (2010). Communicating with faculty, staff, and students using library blogs: Results from a survey of academic health sciences libraries. *Internet Reference Services Quarterly, 15*(3), 149-168. doi:10.1080/10875301.2010.502452

Chen, R., Bennett, S., Maton, K. (2008). The adaptation of Chinese international students to online flexible learning: Two case studies. *Distance Education, 29*(3), 307-323. doi:10.1080/01587910802395821

Cheung, A. C., & Slavin, R. E. (2013). The effectiveness of educational technology applications for enhancing mathematics achievement in K-12 classrooms: A meta-analysis. *Educational research review, 9*, 88-113.

Cho, J., & Yu, H. (2015). Roles of university support for international students in the United States: Analysis of a systematic model of university identification, university support, and psychological well-being. *Journal of Studies in International Education, 19*(1), 11-27.

Chou, M., Collado, E., & Kantor Nagler, D. (2015). Educational technology at the intersection of East meets West: China's globalization in the Digital Age. *Journal of Applied Learning Technology, 5*(2), 14-21.

Chung, J., Yan, D., & Davis, G. (2017). *The Effects of Early Adoption of Academic Electronic Health Records System (EHRS) on Patient Outcome in Nursing.*

Clayton, M. J., Hettche, M., & Dae-Hee, K. (2014). Moving participation beyond the classroom: Who benefits from online social communities? *Journal of Advertising Education, 18*(1), 5-13.

Crandall, J. R. (2015). *The road less traveled: Southeast Asian American undergraduates' college-going experiences* (Doctoral dissertation). Retrieved from https://pdfs.semanticscholar.org/24a6/2429b7a1565441b3ea9fcec99bf4cc966658.pdf

Coffin, R. & MacIntyre, P. D. (1999). Motivational influences on computer-related affective states. *Computers in Human Behavior, 15*, 549-569.

Collis, B. (1999). Designing for differences: Cultural issues in the design of WWW-based course-support sites. *British Journal of Educational Technology, 30*(3), 201-215.

Commander, N., Zhao, Y., Gallagher, P., & You, Y. (2016). Cross-national online discussions: international learning experiences with American and Chinese students in higher education. *Innovations in Education and Teaching International, 53(*4), 365-374.

Compeau, D. R., & Higgins, C. A. (1995). Application of social cognitive theory to training for computer skills. *Information Systems Research, 6*(2), 118-143.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches (Second Edition).* Thousand Oaks, CA: SAGE Publications.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches.* Los Angeles: SAGE Publications.

CuriosityChina. (2015). A report on the data of 2015 WeChat users. Retrieved from http://www.chinaz.com/manage/2015/0601/410809.shtml

Deloitte. (2013). Reflections on education and technological development in China 2013. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/technology-media-telecommunications/deloitte-cn-tmt-reflection-edu-tech-development-china-2013-en-020513.pdf

Denton, D. W., & Wicks, D. (2013). Implementing electronic portfolios through social media platforms: Steps and student perceptions. *Journal of Asynchronous Learning Networks, 17*(1), 125-135.

Denzin, N. K., & Lincoln, Y. S. (2011). *Handbook of qualitative research*. Thousand Oaks: Sage Publications.

De Araujo, A. A. (2011). Adjustment problems of international students enrolled in American colleges and universities: A review of the literature. *Higher Education Studies, 1*(1), 2- 8. doi:10.5539/hes.v1n1p2

Ding, S. (2013). Pedagogical innovation of using WeChat in creating college interactive classrooms: An experiment with commercial advertisement major students. *Science and Economy Market, 11*, 163-164. Retrieved from mall.cnki.net/magazine/article/KJJC201311068.htm

DiGregorio, P., & Sobel-Lojeski, K. (2010). The effects of interactive whiteboards (IWBs) on student performance and learning: A literature review. *Journal of Educational Technology Systems, 38*(3), 255-312.

Dillion, P. Wang, R., and Tearle, P. (2007). Cultural disconnection in virtual education. *Pedagogy, Culture & Society 15*(2), 153-174.

Dobre, I. (2013). An overview of the core criteria used to develop quality management systems for e-learning in the higher education organizations. *Elearning & Software for Education,* (1), 333-338.

Donne, V. (2012). Wiki: Using the web connections to connect students. *TechTrends, 56*(2), 31-36. doi:http://dx.doi.org/10.1007/s11528-012-0561-9

Durndall, A., & Haag, Z. (2002). Computer self-efficacy, computer anxiety, attitudes towards the Internet and reported experience with the Internet, by gender, in an East European sample. *Computer in Human Behavior, 18,* 521-535.

Dunn, A. H., Dotson, E. K., Ford, J. C., & Roberts, M. A. (2014). "You won't believe what they said in class today": Professors' reflections on student resistance in multicultural education courses. *Multicultural Perspectives, 16*(2), 93-98. doi:10.1080/15210960.2014.899779

Edutechnica. (2017). LMS data: Spring 2017 updates. Retrieved from https://edutechnica.com/2017/03/12/lms-data-spring-2017-updates/

Education Market Research. (2014). National survey of interactive whiteboard usage. Retrieved from http://www.marketresearch.com/Simba-Education-Market-Research-v3626/National-Survey-Interactive-Whiteboard-Usage-8103294/

Finlay, L. (2009). Debating phenomenological research methods. *Phenomenology & Practice, 3*(1), pp. 6-25.

Fischer, M. A., Haley, H., Saarinen, C. L., & Chretien, K. C. (2011). Comparison of blogged and written reflections in two medicine clerkships. *Medical Education, 45*(2), 166-175. doi:10.1111/j.1365-2923.2010.03814.x

Fan, Q. (2014). *A study of Web 2.0 in university libraries: Modeling micro-blogs and disciplinary blogs* (Master's thesis). Retrieved from CNKI Database.

Fletcher, G. (2006). Imagine the possibilities. *T H E Journal*, *33*(16), 2-3.

Franklin, T., & Van Harmelen, M. (2007). Web 2.0 for content for learning and teaching in higher education. Retrieved from http://www.webarchive.org.uk/wayback/archive/20140614142108/http://www.jisc.ac.uk/media/documents/programmes/digitalrepositories/web2-content-learning-and-teaching.pdf

Forbush, E., & Foucault-Welles, B. (2016). Social media use and adaptation among Chinese students beginning to study in the United States. *International Journal of Intercultural Relations, 50*, 1-12.

Fox, E. *(*2005*).* Tracking U.S. trends: Electronic transfer: Moving technology dollars in new directions. *Education Week*, *24(*35*)*, 26-28.

Fuchs, C., Boersma, K., Albrechtslund, A., & Sandoval, M. (Eds.). (2013*). Internet and surveillance: The challenges of Web 2.0 and social media (Vol. 16).* Routledge.

Futuresource. (2015). Interactive displays in the education and corporate sectors Q1 2015 – Worldwide. Retrieved from http://reports.futuresource-consulting.com/tabid/64/ItemId/254572/Default.aspx

Gai, K. (2012). An analysis of the investment risks of learning management systems in China's educational market. *Shandong Social Sciences General*, *208*(12), 174-178. Retrieved from http://www.sdshkx.com/upload/down/2012/12/20121238.pdf

Gall, M. D., Gall, J. P., & Borg, W. (2003). *Educational research: An introduction*. Boston: Person Education.

Gatlin, M. (2004). Interactive whiteboard system creates 'active classrooms' for rural Georgia school system. *T H E Journal, 31*(6), 50-52.

Gillette, K. (2007). As the world goes to college: Integration and adjustment of international students on campus. Retrieved from http://www.iienetwork.org/?p=79994

Graham, M. (2014). Social media as a tool for increased student participation and engagement outside the classroom in higher education. *Journal of Perspectives In Applied Academic Practice, 2*(3), 16-24.

Greenough, W. T., Black, J. E., & Wallace, C. S. (1987). Experience and brain development. *Child development*, 539-559.

Grinager, H. (2006). How education technology leads to improved student achievement. National Conference of State Legislatures. Retrieved from http://www.ncsl.org/portals/1/documents/educ/item013161.pdf

Grosseck, G. (2009). To use or not to use web 2.0 in higher education? *Procedia---Social and Behavioral Sciences, 1*(1), 478-482.

Guo, Z. (2015). *Exploring Chinese international students' acceptance of mobile learning* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 10127868)

Haiyan, Z. (2015). An empirical study of blog-assisted EFL process writing: Evidence from Chinese non-English majors. *Journal of Language Teaching & Research, 6*(1), 189-195. doi:10.17507/jltr.0601.23

Hall, I., & Higgins, S. (2005). Primary school students' perceptions of interactive whiteboards. *Journal of Computer Assisted Learning, 21*(2), 102-117.

Hammons, L., Lee, Y., Akins, R., Somasundaram, U. V., & Egan, T. M. (2004). An evaluation case study of an International Student Services Office: Assessing satisfaction and productivity. Retrieved from http://files.eric.ed.gov/fulltext/ED492110.pdf

Han, S., Pistole, M. C., & Caldwell, J. M. (2017). Acculturative Stress, Parental and Professor Attachment, and College Adjustment in Asian International Students. *Journal of Multicultural Counseling and Development, 45*(2), 111-126.

Havelka. (2003). Students beliefs and attitudes toward information technology. *Information Systems Education Journal, 1*(40). Retrieved from http://isedj.org/1/40/ISEDJ.1(40).Havelka.pdf

Heggins, W., & Jacson, J. (2003). Understanding the collegiate experience for Asian international students at a Midwestern Research University. *College Student Journal, 37*, 379-391.

Hu, B. G. (2005). Open source: Toward innovations through educational development in China. M. Scotto and G. Succi (Eds.), *Proceedings of the First International Conference on Open Source Systems* (pp. 254-258). Retrieved from http://oss2005.case.unibz.it/Papers/77.pdf

IGI Global. (2017). What is Learning Management System (LMS)? Retrieved from https://www.igi-global.com/dictionary/learning-management-system-lms/16887

Institute of International Education (IIE). (2016). *Open Doors Report on International Educational Exchange*. Retrieved from http://www.iie.org/opendoors

Irving, K. E. (2006). The impact of technology on the 21st century classroom. In J. Rhoton & P. Shane (Eds.), *Teaching science in the 21st century*. Arlington, VA: National Science Teachers Association.

Jackson, M., Ray, S., & Bybell, D. (2013). International students in the U.S.: Social and psychological adjustment. *Journal of International Students, 3*(1), 17-28.

Januszewski, A., & Molenda, M. (2008). *Educational technology: A definition with commentary.* New York, NY: Lawrence Erlbaum Associates.

Jia, A. (2011). Microblog: A new interactive tool applicable in libraries. *Journal of Library Science, 6,* 91-92. doi:10.14037/j.cnki.tsgxk.2011.06.010.

Jiang, K., Benefield, G. A., Yang, J., & Barnett, G. A. (2017, January). Mapping articles on China in Wikipedia: an inter-language semantic network analysis. In Proceedings of the 50th Hawaii International Conference on System Sciences.

Jiang, Y. (2016). Development of Foreign Language Teachers' IWB-based Interactive Teaching Competence: A Case Study. *Foreign Language and Literature,* 4, 25.

Jin, X. (2014). An investigation of the influence of WeChat use on college students' thinking and behavior. *Hefei College Research Journal (Social Sciences), 5*(3), 946.

Jing, W., Jixin, Pan., & Jing, Z. (2014). Research and prospect of educational technology in China. *Applied Mechanics & Materials,* (644-650), 5632-5635.

John, P. D. & Wheeler, S. (2008). *The digital classroom: Harnessing technology for the future.* London, England: Routledge/David Falmer.

Junco, R., Heiberger, G., & Loken, E. (2011). The effect of Twitter on college student engagement and grades. *Journal Of Computer Assisted Learning, 27*(2), 119-132.

Keengwe, J., & Hussein, F. (2014). Using computer-assisted instruction to enhance achievement of English language learners. *Education and Information Technologies, 19*(2), 295-306.

Kennewell, S., & Beauchamp, G. (2007). The features of interactive whiteboards and their influence on learning. Learning, *Media, & Technology, 32*, 227-241.

Kessler, G., & Hubbard, P. (2017). Language teacher education and technology. *The Handbook of Technology and Second Language Teaching and Learning*, 278-292.

Kim. Y. Y. (2000). *Becoming intercultural: An integrative theory of communication and cross-cultural adaptation.* Thousand Oaks, CA: Sage Publications, Incorporated.

Kinuthia, W. & Marshall, S. (2010). *Educational technology in practice: Research and practical case studies from the field.* Charlotte, NC: Information Age.

Kovalik, C., Kuo, C., Cummins, M., Dipzinski, E., Joseph, P., & Laskey, S. (2014). Implementing web 2.0 tools in the classroom: Four teachers' accounts. *Techtrends: Linking Research & Practice To Improve Learning, 58*(5), 90-94. doi:10.1007/s11528-014-0790-1

Kozma, R. B. (2003). Global perspectives: Innovative technology integration practices from around the world. *Learning and Leading with Technology, 31(2),* 7-54. Retrieved from http://www.usq.edu.au/course/material/edu5472/resources/files/ll31206.pdf

Kung, M. (2016). *Self-reported experiences of Chinese students with online learning in the U.S* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 10299000)

Kvale, S. (1996). *InterViews—An introduction to qualitative research interviewing.* Thousand Oaks, CA: Sage.

Kyei-Blankson, L., Keengwe, J., & Blankson, J. (2009). Faculty use and integration of technology in higher education. *AACE Journal, 17*(3), 199-213.

Kyser, C., McKenna, K., & Williams, M. K. (2015, October). Writing and Relationships: Collaborating with International Students in a Hybrid Writing Workshop. In E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education (pp. 1499-1502). Association for the Advancement of Computing in Education (AACE).

Lai, C. (2015). Modeling teachers' influence on learners' self-directed use of technology for language learning outside the classroom. *Computers & Education*, 82, 74-83.

Lakhana, A. (2014). What is educational technology? An inquiry into the meaning, use, and reciprocity of technology. *Canadian Journal of Learning & Technology*, *40*(3), 1-41.

Lamb, B. (2004). Wide open spaces: Wikis, ready or not. *Educause Review, 39*(5), pp. 36-48.

Laverick, D. M. (2005). *A qualitative study of teachers certified by the national board for professional teaching standards and their expertise in promoting early literacy* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3165958)

Lee, Y., Kozar, K. A., & Larsen, K. R. (2003). The technology acceptance model: Past, present, and future. *Communications of the Association for information systems, 12*(1), 50.

Li, G., & Ni, X. (2010). Elementary in-service teachers' beliefs and uses of technology in China. *International Journal of Technology in Teaching and Learning*, *6*(2), 116-132.

Li, N., & Kirkup, G. (2007). Gender and cultural differences in Internet use: A study of China and the UK. *Computers & Education, 48*(2), 301-317.

Li, N., & Rosson, M. B. (2012, October). At a different tempo: what goes wrong in online cross-cultural group chat? In Proceedings of the 17th ACM International Conference on Supporting Group Work (pp. 145-154). ACM.

Li, Y. (2013). Dissemination and optimization of moral education information based on WeChat. *China's Digitalized Education, 320*, 133-136.

Liang, H., Li, D., & Li, Q. (2014). The influence of WeChat on the establishment of campus culture at Zhejiang University of Agriculture and Forestry. *Modern Enterprise Education, 8*(1), 45.

Lima, C. O., & Brown, S. W. (2007). Global citizenship and new literacies providing new ways for social inclusion. *Psicologia Escolar e Educacional, 11*(1), 13-20.

Lin, C. (2013). *Instructional theory for using a class wiki to support collaborative learning in higher education* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3560901)

Liu, Y. (2010). A study of the application of multimedia courseware in physical education based on the Linux desktop system. Retrieved from http://cdmd.cnki.com.cn/Article/CDMD-10112-2010143721.htm

Liu, X., Liu, S., Lee, Sh., & Magjuka, R. J. (2010). Cultural Differences in Online Learning: International Student Perceptions. *Educational Technology & Society, 13*(3), 177–188.

Liu, M., Lv, J., & Kang, C. (2010). Educational technology in China. *British Journal of Educational Technology, 41*, 541-548.

Liu, Y. (2016). *Improving Chinese university students' speaking performance in mobile-assisted English learning* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 10300217)

Machado, C., & Jiang, Y. (2014). Using Twitter to heighten student engagement, critical thinking and reflective practice within and beyond the classroom. *Teacher Education and Practice, 27*(4), 577-590.

Merriam, S. B. (1988). *Case study research in education: A qualitative approach*. Jossey-Bass.

Mason, R., & Rennie, F. (2008). *E-learning and social networking handbook: Resources for higher education*. New York: Routledge.

Mayall, H. J. (2008). Differences in gender based technology self-efficacy across academic levels. *International Journal of Instructional Media*, *2*(35), 145-156.

McCole, D., Everett, M., & Rivera, J. (2014). Integrating Facebook into the college classroom: Student perceptions and recommendations for faculty. *NACTA Journal, 58*(1-4), 246-251.

McDonald, T., & Siegall, M. (1992). The effects of technological self-efficacy and job focus on job performance, attitudes, and withdrawal behaviors. *The Journal of Psychology, 126,* 465-475.

Mesidor, J. K., & Sly, K. F. (2016). Factors that contribute to the adjustment of international students. *Journal of International Students, 6*(1), 262.

Miyazoe, T., Anderson, T., & Sato, S. (2014). "To-do-or-not-to-do dilemma" online: Blog and essay writing visualizations in a blended-format university English course. *Electronic Journal of Foreign Language Teaching, 11*.

Monaghan, M. S., Cain, J. J., Malone, P. M., Chapman, T. A., Walters, R. W., Thompson, D. C., & Riedl, S. T. (2011). Educational technology use among U.S. colleges and schools of pharmacy. *American Journal of Pharmaceutical Education, 75*(5), 1-9.

Moran, M., Seaman, J., & Tinti-Kane, H. (2011). *Teaching, learning, and sharing: How today's higher education faculty use social media*. Boston, MA: Pearson Learning Solutions. Retrieved from http://www.pearsonlearningsolutions.com/educators/pearson-social-media-survey-2011-bw.pdf

Mori, S. (2000). Addressing the mental health concerns of international students. *Journal of Counseling & Development, 78*, 137-144.

Morgan, H. (2015). Creating a class blog: A strategy that can promote collaboration, motivation, and improvement in literacy. *Reading Improvement, 52*(1), 27-31.

Moustakas, C. (1994). *Phenomenological research methods.* Thousand Oaks, CA: Sage.

Mukthyala, S. (2013). *Lived experiences of Indian international students: Migration, acculturation, and resilience* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3554642).

National Association of Foreign Student Advisers. (2012). What Is the Value of International Students to Your State in 2012? Retrieved from http://www.nafsa.org/Explore_International_Education/Impact/Data_And_Statistics/What_Is_the_Value_of_International_Students_to_Your_State_in_2012_/

Nickerson, R. S., & Zodhiates, P. P. (Eds.). (2013). *Technology in education: Looking toward 2020.* Routledge.

Nilsson, J. E., Butler, J., Shouse, S., & Joshi, C. (2008). The relationships among perfectionism, acculturation, and stress in Asian International Students. *Journal of College Counseling, 11*(2), 147-158.

Nolan, K. (2009). Smarter music teaching. *General Music Today, 22*(2), 3-11.

Nonaka, I. & Nishiguchi, T. (2001). *Knowledge emergence: Social, technical, and evolutionary dimensions of knowledge creation.* New York: Oxford University Press.

O'Donnell, A. M., Hmelo-Silver, C. E., & Erkens, G. (Eds.). (2013). *Collaborative learning, reasoning, and technology.* Routledge.

Pacheco, M. B., Smith, B. E., & Carr, S. (2017). Connecting classrooms and communities with language and technology: A multimodal code-meshing project. *Voices from The Middle, 24*(3), 63-67.

Pajares, F. (2002). Overview of social cognitive theory and of self-efficacy. Retrieved from http://www.uky.edu/~eushe2/Pajares/eff.html

Pan, Y. (2014). *Transcendence of time and space: The lived experiences of Chinese international graduate students in the United States* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3682801)

Part, C. L., Crocker, C., Nussey, J., Springate, J., & Hutchings, D. (2010). Evaluation of a teaching tool---wiki---in online graduate education. *Journal of Information Systems Education, 21*(3), 313-321.

Pan, G., & Bonk, C. J. (2007). The emergence of open-source software in China. *International Review of Research In Open & Distance Learning, 8*(1), 1-17. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/331/762

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research.* The Jossey-Bass higher and adult education series. San Francisco: Jossey-Bass.

Peng, Z. (2017). *An examination of WeChat: Predictors of news use on a closed messaging platform* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 10281531)

Pennycook, A. (2017). *The cultural politics of English as an international language*. Taylor & Francis.

Petherbridge, D. & Chapman, D. D. (2007). Changing your learning management system: Implications for student support. *Online Journal of Distance Learning Administration, 10*(1). Retrieved from http://www.westga.edu/~distance/ojdla/spring101/petherbridge101.htm

Pfeil, U., Zaphiris, P., and Ang, C. S. (2006). Cultural differences in collaborative authoring of Wikipedia. *Journal of Computer-Mediated Communication, 12*(1), 88-113.

Qian, J. (2008). *Host communication competence and mass media use among a sample of Chinese ESL students* (Doctoral Dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. NR65431).

Qiao, Z. (2017). Will foreign LMS work for China? Retrieved from http://www.lieyunwang.com/archives/150968

Qiu, W. (2011). *Language adjustment of international students in the U.S.: A social network analysis on the effects of language resources, language norm and technology* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3434212)

Red Flag Linux. (2015). Partnerships with enterprises. http://www.redflag-linux.com/edu/manage.html

Redfield, R., Linton, R., & Herskovits, M. J. (1936). Memorandum for the study of acculturation. *American Anthropologist, 38*, 149-152.

Ren, Y. (2011). *A study of the knowledge service in university libraries using disciplinary blogs* (Master's thesis). Retrieved from CNKI Database.

Roblyer, M. D., Edwards, J., & Havriluk, M. A. (1997). *Integrating educational technology into teaching*. Upper Saddle River, NJ: Prentice-Hall.

Roblyer, M. D., McDaniel, M., Webb, M., Herman, J., and Witty, J. V. (2010). Findings on Facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites. *The Internet and Higher Education, 13*(3), pp. 134-140.

Saha, N., & Karpinski, A. C. (2016). The influence of social media on international students' global life satisfaction and academic performance. *Campus Support Services, Programs, and Policies for International Students, 57*.

Sam, D. L. *(*2006*).* Acculturation: Conceptual background and core components. *In* Sam D. L., Berry W. J. *(Eds.), The Cambridge handbook of acculturation psychology (pp.* 11-26*).* Cambridge, England*:* Cambridge University Press.

Samaha, K. S. (1997). *History of the international program at the University of Michigan, 1847-1995: Demographics, services, and contemporary* perspectives (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 9722080)

Schoonenboom, J. (2014). Using an adapted, task-level technology acceptance model to explain why instructors in higher education intend to use some learning management system tools more than others. *Computers & Education, 71*, 247-256.

Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education: Theory, research, and applications* (4th ed.). Boston: Pearson Education.

Seidman, I. (2013). *Interviewing as qualitative research: A guide for researchers in education and the social sciences (4th ed.).* New York, NY: Teachers College Press.

Selwyn, N. (2007). Web 2.0 applications as alternative environments for informal learning – a critical review. Paper presented at the OECD-KERIS Expert Meeting – Session 6 – Alternative learning environments in practice: Using ICT to change impact and outcomes. Institute of Education, University of London. Retrieved from http://www.oecd.org/edu/ceri/39458556.pdf

Shah, S. S., & Murtaza, A. D. (2012). An investigation into the application of educational technology at higher educational institutions. *Theory & Practice in Language Studies, 2*(7), 1420-1429. doi:10.4304/tpls.2.7.1420-1429

Shamburg, C. (2004). Conditions that inhibit the integration of technology for urban early childhood teachers. *Information Technology in Childhood Education Annual, 2004*(1), 227-244.

Shana, Z. (2009). Learning with technology: Using discussion forums to augment a traditional-style class. *Educational Technology & Society, 12*(3), 214–228.

Shen, Q. (2013). Use of blog to improve English writing in the Chinese tertiary EFL classrooms. *English Language Teaching, 6*(10), 51-56. Retrieved from http://search.proquest.com/docview/1459136356?accountid=11652

Shi, Y., Yang, H., Wu, D., & Zhu, S. (2015, October). Interactive Whiteboard-Based Instruction versus Lecture-Based instruction: A Study on Students' Learning Achievement. In Educational Innovation through Technology (EITT), 2015 International Conference of (pp. 231-235). IEEE.

Slay, H., Siebörger, I., & Hodgkinson-Williams, C. (2008). Interactive whiteboards: Real beauty or just lipstick? *Computers and Education, 51*, 1321–1341.

Sloan, A. & Bowe, B. (2014). Phenomenology and hermeneutic phenomenology: the philosophy, the methodologies and using hermeneutic phenomenology to investigate lecturers' experiences of curriculum design. *Quality & Quantity, 48*(3), 1291-1303. doi:10.1007/s11135-013-9835-3

Sloan, D., Porter, E., Robins, K., & McCourt, K. (2014). Using e-learning to support international students' dissertation preparation. *Education Training, 56*(2/3), 122-140.

Smith, H. J., Higgins, S., Wall, K., & Miller, J. (2005). Interactive whiteboards: Boon or bandwagon? A critical review of the literature. *Journal of Computer Assisted Learning*, *21*(2), 91-101. doi:10.1111/j.1365-2729.2005.00117.x

Smith, J., Haygood, H., Akers, C., & Villareal, V. (2004). Computer knowledge, skills, and experiences of students enrolled in undergraduate courses in the College of Agricultural Science and Natural Resources. *NACTA Journal*, *48*(1), 45-51.

Soria, K. M., & Troisi, J. (2014). Internationalization at home alternatives to study abroad: Implications for students' development of global, international, and intercultural competencies. *Journal of Studies in International Education, 18*(3), 261-280.

Spector, J. M., Merrill, M. D., Elen, J., & Bishop, M. J. (Eds.). (2014). *Handbook of research on educational communications and technology* (pp. 439-451). New York, NY: Springer.

Streubert, H.J. and Carpenter, D.R. (2011) *Qualitative research in nursing: Advancing the humanistic imperative.* Wolters Kluwer, Philadelphia.

Stanford Encyclopedia of Philosophy, (2003). Phenomenology. Retrieved from https://plato.stanford.edu/entries/phenomenology/

Statista. (2015). Social networks in China-Statista Dossier. Retrieved from http://www.statista.com/study/12459/social-networks-in-china-statista-dossier/

Stock, A. (2012). Keynote Remarks at the IIE Best Practices Conference. Retrieved from https://www.iie.org%2F~%2Fmedia%2FFiles%2FCorporate%2FMembership%2F2012-Best-Practices-Conference-Presentations%2FBest-Practices-Conference-Ann-Stock-Remarks.pdf%3Fla%3Den&usg=AOvVaw3EKAZwgf6aPT3rxCytxCzi

Strachan, R., & Aljabali, S. (2015). Investigation into Undergraduate International Students' Use of Digital Technology and Their Application in Formal and Informal Settings. *International Association for Development of the Information Society.*

Su, J. (2014). *A study of WeChat application in graduate students' online collaboration learning model* (Master's thesis). Retrieved from CNKI Database.

Sümer, S. (2009). *International students' psychological and sociocultural adaptation in the United States* (Doctoral dissertation). Retrieved from EBSCOhost. (Accession No. ED515598).

Swagler, M. A., & Ellis, M. V. (2003). Cross the distance: Adjustment of Taiwanese graduate students in the United States. *Journal of Counseling Psychology, 50*, 420-437.

Thatcher, A. & Ndabeni, M. (2011) A psychological model to understand e-adoption in the context of the digital divide. In Steyn, J & Johanson, G. (eds) *ICTs and Sustainable Solutions for the Digital Divide: Theory and Perspectives* (pp. 127-149). New York: IGI Global.

Tian, H., & Lian, G. (2008). An investigation of the educational use of Linux in vocational and technical colleges. *Modern Enterprise Education, 12*. 11-12. Retrieved from http://211.67.182.139/KCMS/detail/detail.aspx?filename=XDQJ200812010&dbcode=CJFR&dbname=

Torkzadeh, G., & Van Dyke, T. P. (2002). Effects of training on Internet self-efficacy and computer user attitudes. *Computers and Human Behavior, 18,* 479-494.

Treadwell, K. L. (2015). *Learning from tragedy: A phenomenological study of student affairs leadership following college campus disasters* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3704537)

Tsai, C. C., & Hwang, G. J. (2013). Issues and challenges of educational technology research in Asia. *The Asia-Pacific Education Researcher, 22*(2), 215.

Tseng, W., & Newton, F. B. (2002). International students' strategies for well-being. *College Student Journal, 36*(4), 591.

Tufford, L. & Newman, P. (2010). Bracketing in qualitative research. *Qualitative Social Work, 11*(1), 80-96. doi: 10.1177/1473325010368316

U.S. Department of Education. (2017). Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update. Washington, DC: Author. Retrieved from https://tech.ed.gov/files/2017/01/NETP17.pdf

Varma, S. (2010). *Prior computer experience and technology acceptance* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3432641)

Van Manen, M. (1990a). Researching lived experience. State University of New York Press, New York.

Van Manen, M. (1990b). Beyond assumptions: Shifting the limits of action research. *Theory into practice*, *29*(3), 152-157.

Van Manen, M. (2014). *Phenomenology of practice.* Retrieved from http://www.maxvanmanen.com/files/2014/10/MvM-Phen-of-Practice-113.pdf

van Rooij, S. W. (2012). Open-source learning management systems: A predictive model for higher education. *Journal of Computer Assisted Learning, 28*(2), 114-125.

van Teijlingen, E. & Hundley, V. (2002). The importance of pilot studies. *Nursing Standard*, *16*, *40*, 33–36. doi:10.7748/ns2002.06.16.40.33.c3214 [

Vogel, T. M., & Goans, D. (2005). Delivering the news with blogs: The Georgia State University library experience. *Internet Reference Services Quarterly, 10*(1), 5-27.

Volet, S. E., & Ang, G. (2012). Culturally mixed groups on international campuses: An opportunity for inter-cultural learning. *Higher education research & development*, *31*(1), 21-37.

Waghid, Y., Waghid, F., & Waghid, Z. (2016). *Educational Technology and Pedagogic Encounters: Democratic Education in Potentiality.* Rotterdam, Netherlands: Sense Publishers.

Wan, T., Chapman, D. W., & Biggs, D. A. (1992). Academic stress of international students attending U.S. universities. *Research in Higher Education, 33,* 607-623.

Wang, C. H., Shannon, D. M., & Ross, M. E. (2013). Students' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning. *Distance Education, 34*(3), 302-323.

Wang, L. (2014). Design and practice of computer fundamental course based on the blended learning. *Applied Mechanics & Materials*, (644-650), 5690-5694.

Wang, Y. (2006). *Internet use among Chinese students and its implication for cross-cultural adaptation* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3239990)

Wang, Y., & Sun, S. (2007). Internet use among Chinese students and its implication for cross-cultural adaptation. *Conference Papers for International Communication Association,* 1-32.

Ward, C., & Kennedy, A. (2001). Coping with cross-cultural transition. *Journal Of Cross-Cultural Psychology*, *32*(5), 636-642.

We Are Social. (2015). Digital, social & mobile worldwide in 2015. http://wearesocial.net/blog/2015/01/digital-social-mobile-worldwide-2015/

Weaver, D., Spratt, C., & Nair, C. S. (2008). Academic and student use of a learning management system: Implications for quality. *Australasian Journal of Educational Technology*, *24*(1), 30-41.

Wen, H. (2015). *Use of social networking technologies: Effects on college students' academic writing* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3714772)

Wikimedia Report Card February 2012. (2012). Wikimedia. Retrieved from http://stats.wikimedia.org/reportcard/

Wikipedia. (2015). Chinese Wikipedia. Retrieved from http://en.wikipedia.org/wiki/Chinese_Wikipedia

Wikipedia. (2017). Chinese Wikipedia. Retrieved from http://en.wikipedia.org/wiki/Chinese_Wikipedia

Wilson, C. (2013). Making connections: Higher education meets social media. *Change*, *45*(4), 51-57. doi:10.1080/00091383.2013.806201

Xu, H. L., & Moloney, R. (2011). Perceptions of interactive whiteboard pedagogy in the teaching of Chinese language. *Australasian Journal of Educational Technology, 27*(2), 307-325.

Xu, J., Kang, Q., Song, Z., & Clarke, C. P. (2015). Applications of mobile social media: WeChat among academic libraries in China. *Journal of Academic Librarianship, 41*(1), 21-30. doi:10.1016/j.acalib.2014.10.012

Xu, Q., & Mocarski, R. (2014). A cross-cultural comparison of domestic American and International Chinese students' social media usage. *Journal of International Students, 4*(4), 374-388. Retrieved from http://search.proquest.com/docview/1642598090?accountid=11652

Yan, K. (2017). Chinese international students in the United States: Adjustment problems and coping behaviors. In *Chinese international students' stressors and coping strategies in the United States* (pp. 19-32). Springer Singapore.

Yan, K., & Berliner, D. C. (2011). Chinese international students in the United States: Demographic trends, motivations, acculturation features and adjustment challenges. *Asia Pacific Education Review, 12*(2), 173-184. doi:10.1007/s12564-010-9117-x

Yang, J. Y., & Teng, Y. W. (2014). Perceptions of elementary school teachers and students using interactive whiteboards in English teaching and learning. *Journal of Interactive Learning Research, 25*(1), 125-154.

Yang, C., Wu, H., Zhu, G., & Southwell, B. (2004). Tuning in to fit in? Acculturation and media use among Chinese students in the United States. *Asian Journal of Communication, 14*(1), 81-94.

Yang, S., Xu, J., & Shao, S. (2012). Library microblogging based on Sina microblogging platform. *Information Computing and Applications Communications in Computer and Information Science, 307*, 702-707.

Yang, X. (2016). *Mobile devices supporting international students to overcome language and cultural difficulties during study abroad* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 10660518)

Yang, Y. (2011). *A study of college English interactive classroom based on the application of interactive whiteboard* (Master's thesis). Retrieved from CNKI Database.

Ye, J. (2006). Traditional and online support networks in the cross-cultural adaptation of Chinese international students in the United States. *Journal of Computer-Mediated Communication, 11*(3), 863-876.

Yi, D. (2015). The potential of LMS integration in Chinese higher education. Retrieved from http://36kr.com/p/5040254.html

Yoo, S. J., & Huang, W. D. (2011). Comparison of Web 2.0 technology acceptance level based on cultural differences. *Journal of Educational Technology & Society, 14*(4), 241-252.

Zha, S., Adams, A. H., & Mathews-Ailsworth, J. (2013). Examining the blog use in a faculty development programme: A multiple case study. *International Journal of Learning Technology, 8*(1), 5-19.

Zhadko, O. (2011). *Experiences of international students using information communication technology in college in the United States.* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3460079)

Zhai, D. & Liu, C. (2007). Web 2.0 applications in China. In Wang (Ed.) Integration and innovation: Orient to E-Society. *IFIP International Federation for Information Processing, 252*(2), Springer, Boston, pp. 26-33.

Zhang, F. (2014). An explorative study of college English learning assistance model based on WeChat. *Overseas English.* 72-73. Retrieved from mall.cnki.net/magazine/Article/HWYY201410033.htm

Zhang, L. (2009). Virtual story, real life: An examination of Chinese students' acculturation in the United States through blogs. Paper presented at the annual meeting of the International Communication Association, Marriott, Chicago, IL. Retrieved from http://citation.allacademic.com/meta/p_mla_apa_research_citation/2/9/8/8/3/pages298830/p298830-1.php

Zhang, Y. (2005). *Phenomenological study of Chinese students' academic and social integration on campus* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3192509)

Zhao, N., & McDougall, D. (2008). Cultural influences on Chinese Students' asynchronous online learning in a Canadian university. *Journal of Distance Education, 22*(2), 59-79.

Zhongwen, L. (2014). A study on the application of WeChat in ESP training. *Theory & Practice in Language Studies, 4*(12), 2549-2554. doi:10.4304/tpls.4.12.2549-2554

Appendix A

Potential Guiding Questions and Concepts for Interviews

INTERVIEW ONE: PAST EXPERIENCE

The participants share their past experience of using educational technology in Chinese universities.

1. Please tell me about your experiences of using educational technology as a college student in China. What technologies have you generally used in classrooms or on the campus and for what purposes?

2. Please describe the hardware and software you have used or had access to for educational purposes as a college student in China. Please give some examples and specify their academic purposes.

3. Please tell me about your experiences of dealing with technological problems during your study in China. Please describe some resources (in and outside of the university) that can be used as technology support.

4. Please describe the situation of professors using educational technology in your previous university. How do you feel about the situation? Generally, what technologies did the professors use more frequently?

5. Did you have any professor(s) using various forms of technology (such as blogs and social media)? If so, please describe how the technology was used.

6. What are some educational technologies that you had confidence or did not have confidence in using when you were in China? Please explain the reasons.

7. How do you feel about using educational technology for academic purposes in China?

INTERVIEW TWO: CONTEMPORARY EXPERIENCE

The participants elaborate on their contemporary experiences of using educational technology in American universities.

1. What educational technology do you know are available at your university, in terms of hardware, software and technological support? In general, what do you think of the educational technology in American universities?

2. Please describe the educational technology that impressed you most at the beginning of your study in America. Please list some education technologies you feel comfortable and uncomfortable to use/get access to in the university. Tell me about their influences on your confidence in your ability to use technology.

3. Please tell me about your general experiences of using educational technology as a university student in America. You can include any positive and/or negative experiences of using/getting access to the technology here.

4. Please describe in detail the hardware and software you more often use/get access to for educational purposes as a university student in America. Please give some examples and specify their academic purposes.

5. Tell me about your experiences of dealing with technological difficulties related to your study here, if any. How did they influence you? How do you seek for technological support (in and outside of the university)?

6. Please describe the situation of professors using educational technology at your university. How do you feel about the situation? Generally, what technologies did the professors use more frequently and for what purposes?

INTERVIEW THREE: REFLECTION ON MEANING

The participants should describe their reflections and perceptions by elaborating on the following concepts:

1. Please compare the similarities and differences in educational technology between your current university and your previous university in China. What similarities and differences do you notice in terms of hardware, software and technology support? What similarities and differences do you notice between Chinese professors and American professors in terms of using educational technology? What similarities and differences are there between Chinese students and American students in terms of using educational technology?
2. Please describe three major educational technology tools you have learned to use after you came to America. What do you use these tools for? Do you think these educational technology tools help you better adapt to the university life, such as developing relationships with American peers and participate more actively in class and on-campus activities? If so, please list some examples.
3. How do you describe your competence in educational technology before and after you started studying at the university you are in now?
4. How do you describe your study in America so far? How do you view your adaptation to the American life now? Please describe your positive and/or negative experiences regarding adapting to American culture in the university and in your daily life.
5. Please elaborate the role that your technology experience in America has played in your acculturation in the American university and American society (e.g. does it help with or hinder you from becoming more effective in the new environment)? How do the similarities and differences in educational technology investment and applications between Chinese and

American universities influence your acculturation in the American university and American society?

6. Please tell me about the role that your technology experience in America has played in your academic performance.

7. If possible, what changes do you wish could be made to the current educational technology at your American university?

8. In general, what suggestions would you give to the university (including professors and program directors) on helping Chinese students with a smooth transition to studying and living in America in terms of providing support on educational technology?

Appendix B

Pilot Study Invitation Email

Dear _____,

I am writing to ask if you might be interested in participating in my pilot study by answering some interview questions related to Chinese students' experience with educational technology. The pilot study is part of my doctoral dissertation research.

The study involves a series of three telephone interviews, with each approximately 30 minutes long. The time, place, and forms (telephone, online conferencing, etc.) of the interviews can be scheduled at your convenience. All the interviews will be audiotaped so I can transcribe the information in future.

If you are willing to participate, please sign and return the attached Informed Consent Form via postal mail or as a scanned e-mail attachment. Please also provide me with your home address and telephone number via email. Your information will be kept confidential.

This project has been approved by my university's Institutional Review Board for the Protection of Human Subjects (724/357-7730).

Sincerely,

Ying Jiang

Email: wnqr@iup.edu

Cellphone: (724)541-0873

Address: 419 S Sunset Dr. Apt 3

Andover, KS 67002

Appendix C

Pilot Study Informed Consent Cover Letter

Dear _____:

Thank you for your interest in participating in the pilot study for my doctoral dissertation research on Chinese students' experience with educational technology. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions, please do not hesitate to ask.

The study aims to explore how Chinese students' perceptions of ways in which educational technology experiences affect their postsecondary studies, daily living, and acculturation in America. The information gained from this study may help students, educators, and international student programs in America to better understand your needs for educational technology support as an international student. In addition, the information you provide may help us better understand the cultural differences in technology use between China and America and how they affect your living and acculturation in the American culture. There are no known risks or discomforts associated with this research.

The audiotaped interviews will focus on different aspects of your experience with educational technology. The first interview will provide information about your educational technology experience in China; the second interview is intended to describe your contemporary educational technology experience in America; and the third interview will engage you in reflecting on ways in which these technology experiences affect their personal factors, postsecondary studies, and acculturation in America. Each interview will last approximately 30 minutes.

To keep the confidentiality of your identity, your will be given a pseudonym in any future published journal articles and dissertation related to this study. Any demographic information that you provide will be used solely for statistical concerns. All raw data from the study will be destroyed three years after any publication of the results.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. Your decision will not result in any loss of benefits to which you are otherwise entitled. You may withdraw at any time by notifying by contacting the investigator Ying Jiang via e-mail (wnqr@iup.edu) or cell phone (724-541-0873). Any data collected from you would then be destroyed. If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the university. Please feel free to contact me if you have any questions, concerns, or require additional information about the project.

If you are willing to participate in this pilot study, please sign the statement on the Consent Form and return to Ying Jiang via postal mail or as a scanned e-mail attachment to wnqr@iup.edu. Please retain a second copy for yourself.

Sincerely,

Ying Jiang

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E-mail: kpaquett@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).

VOLUNTARY CONSENT FORM:

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone number or location where you can be reached

Best days and times to reach you

Appendix D

Invitation Email

Dear Chinese students:

Welcome back for a new semester! My name is Ying Jiang, a doctoral candidate in Curriculum and Instruction. Currently I'm working on my dissertation and I would like to invite you to participate in my study on the experiences of Chinese students using educational technology in America. If you choose to participate in the study, you will get a 20-dollar gift card as a reward after the interviews.

My study aims to explore how you view the influence of your educational technology experiences on your studies, daily living, and acculturation in America. It will involve three individual interviews. The interviews can be scheduled via face-to-face, phones, or online conferencing tools/ conferencing app (e.g. Wechat), at your convenience and preference. For all the interviews, you can use Chinese and/or English to communicate with the investigator.

To be eligible to participate in this study, you need to have the experience of studying in both Chinese universities and American universities for at least a semester respectively. If you are eligible for this study and would like to participate, please reply by completing the following information. I will contact you and explain the study in further detail.

Name:

Telephone Number:

Major:

Grade Level:

This project has been approved by the the university's Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).

I realize that your time is precious, but by participating in this study you will make a contribution to Chinese students' study and living in America. I highly appreciate your time and support and hope you can participate in this study.

Wish you all the best in the new semester!

Ying Jiang

Doctoral Candidate in Curriculum and Instruction
Indiana University of Pennsylvania
Email: wnqr@iup.edu Cellphone: 7245410873

Appendix E

Informed Consent Form

Dear Students:

You are invited to participate in a qualitative study of experiences of Chinese students using educational technology in American universities. The investigator is Ying Jiang, a doctoral candidate in Curriculum and Instruction in Professional Studies in Education. The data collected from the current study will be used by the investigator to finish her doctoral dissertation. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions, please do not hesitate to ask. You are eligible to participate because you are a Chinese international student at an American university and have previously attended a Chinese university.

The study aims to explore how Chinese students' perceptions of ways in which educational technology experiences affect their postsecondary studies, daily living, and acculturation in America. The information you provide will help us better understand the cultural differences in technology use between China and America and how they affect your living and acculturation in the American culture. As an international student, you will benefit from the study because the information you provide can help students, educators, and international student programs in America to better understand your needs for educational technology support. There are no known risks or discomforts associated with this research.

This study consists of three individual interviews. You can choose to participate in the interviews by indicating it on the Consent Form. The investigator will conduct the interviews during the fall semester of 2015 and spring semester of 2016. During this period of time, three interviews will be arranged at three different times at your convenience. As a participant in the study, you will be asked to devote about 30 minutes to each interview. The interviews can be scheduled via face-to-face, phones, or online conferencing tools/ conferencing app, at your convenience and preference. The interview questions will be provided to you well in advance via e-mail before each interview. The questions are related to your past educational technology experience in China, educational technology experience in America and your perceptions of ways in which these technology experiences affect your personal factors, postsecondary studies, and acculturation in America. For all the interviews, you can use Chinese and/or English to communicate with the investigator. After the interviews, you will receive a typed transcript of your recorded interview and make corrections that you think are appropriate.

All the interviews will be audio recorded due to research purposes. To keep the confidentiality of your identity, your will be given a fake name in any future published journal articles and dissertation related to this study. Any demographic information that you provide will be used solely for statistical concerns. All raw data from the study will be destroyed three years after any publication of the results.

Your participation in this study is voluntary. If you choose to participate in the study, you will get a 20-dollar gift card after the three interviews. The gift card will be sent to you via mail or email one week after your third interview is finished. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or your university. Your decision will not result in any loss of benefits to which you are otherwise entitled. You may withdraw at any time by contacting the investigator Ying Jiang via e-mail (wnqr@iup.edu) or cell phone (724-541-0873). Any data collected from you would then be destroyed. If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the university. Please feel free to contact me if you have any questions, concerns, or require additional information about the project.

If you are willing to participate in this study, please sign the statement on the Consent Form and return to Ying Jiang via postal mail or as a scanned e-mail attachment to wnqr@iup.edu. Please retain a second copy for yourself.

Sincerely,

Ying Jiang

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VOLUNTARY CONSENT FORM:

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone number or location where you can be reached

Best days and times to reach you

Appendix F

Demographic Information Questionnaire

Please provide the following information:

1. Name:
2. Gender:
3. Age:
4. Major at IUP:
5. Email:
6. Phone:
7. Address:
8. Best time to reach you:
9. The name of the university you studied at in China:

10. How long did you study in the Chinese university? What was your major?

11. How long have you been studying here at IUP? Did you go to other American universities before coming to your current university? Please specify.

12. What are the top three technologies you use every day?

13. What are your mostly used technologies for educational purposes?

Appendix G

Definition and Scopes of Educational Technology in This Study

Educational Technology: is "the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources" (Association for Educational Communications and Technology, 2008).

For this study, educational technology will include the specific **hardware, software , technological support, and technological beliefs and practices** used for **educational purposes**, as well as **other technological resources** identified by students that they can get access to in the classrooms and around the campus.

Some examples of educational technology are listed as follows:

- Hardware: computers, laptops, smartphones, tablets, Smartboards, clickers, projectors, and etc.
- Software: learning management system (such as Moodle, Blackboard, and D2L); Web 2.0 tools including Wi-Fi, emails, blogs, skype, games and simulations, social network (Facebook, Twitter, Instagram, YouTube, WeChat, QQ, Baidu, etc.), E-portfolio, and etc.; specific softwares such as Microsoft Word, Excel, PowerPoint, etc.
- Technology support that you get from your classmates, your friends, your professors or the university in forms of concrete or immaterial technological resources, such as iHelp at IUP, Wi-Fi, IT support center, technology workshops and trainings, etc.

- Technological beliefs and practices refer to your technology habits and preferences, such as the frequency you check your email or use social media and your favorite websites for finishing assignments.