7-2021

A Case Study of English as Foreign Language Chinese Teachers' Use of Computer-Based Technology

Lingao Li
lli09@georgefox.edu

A CASE STUDY OF ENGLISH AS FOREIGN LANGUAGE CHINESE TEACHERS' USE OF COMPUTER-BASED TECHNOLOGY

By

Lingao Li

FACULTY RESEARCH COMMITTEE:

Chair: Terry Huffman, PhD

Committee Members: Dane Joseph, PhD & Gary Sehorn, EdD

Presented to the Faculty of the

Doctor of Educational Leadership Department

George Fox University

in fulfillment for the degree of

DOCTOR OF EDUCATION

July 19, 2021

GEORGE FOX UNIVERSITY

COLLEGE OF EDUCATION | EDD

"A CASE STUDY OF ENGLISH AS FOREIGN LANGUAGE CHINESE TEACHERS' USE OF COMPUTER-BASED TECHNOLOGY," a Doctoral research project prepared by LINGAO LI in partial fulfillment of the requirements for the Doctor of Education degree in Educational Leadership.

This dissertation has been approved and accepted by:

Committee Chair

Terry Huffman

7.21.21

July 19, 2021 Terry Huffman, Ph.D. Professor of Education

Gary Sehorn

July 19, 2021 Gary Sehorn, Ed.D. Associate Professor of Education

Dane Joseph

7.21.21

July 19, 2021 Dane Joseph, Ph.D. Associate Professor of Education

ABSTRACT

The purpose of this research was to explore the experiences of four Chinese university teachers of English as a Foreign Language (EFL) on the effectiveness of implementing computer-based technologies in their classes. Specifically, this case study sought to document the participants' views on 1) the types of computer-based technology used in their classes; 2) the role of computer-based educational technology in teaching EFL pedagogy; 3) the potential benefits in using computer-based instructional technologies in EFL; 4) the challenges and/or barriers to the effective use of computer-based instructional technologies in EFL instruction. Using both within case and cross-case analyses, the findings reveal a complex interwoven set of perceptions and experiences computer-based technologies and English language teaching. Seven important themes emerged: 1) the school strongly encourages the use of auxiliary educational platforms; 2) the school supports teachers with many resources; 3) computer-based technologies have impacted student learning; 4) computer-based technologies have impacted the way teachers instruct; 5) computer-based technology enhance teaching effectiveness and efficiency; 6) technical difficulties associated with computer-based technologies are challenging; and 7) the COVID-19 pandemic forced more rapid adoption of computer-based technologies. This research is especially significant as it includes a unique set of educators in a unique educational setting, implementing emerging educational technologies.

TABLE OF CONTENTS

LIST OF FIGURE AND TABLES

CHAPTER 1: INTRODUCTION

Technology has long been involved in human development and learning. E-learning, an important form of computer-based technology, involves educating and training learners by using computers to access internet resources, e-textbooks, and electronic courseware (Cross, 2004). According to Cross (2004) and Hubackova (2015), e-learning was first put forward by the Computer-Based Training (CBT) system seminar in Los Angeles, California in 1999. Since that introduction, CBT has been widely adopted throughout the world. Based on reports of corporate training conference, the most efficient form of training includes a blend of traditional learning and e-learning methods (Bitner & Bitner, 2002). By 2010, among American enterprises, 15% had already adopted mobile learning, and 50% had considered mobile learning through the support of professional development (Wentworth & Green, 2011). By the end of 2011, 77% of worldwide companies had adopted an online learning model while in 1995 only 4% of them were using e-learning to train their employees (Srivastava & Agarwal, 2013). Clearly some type of e-learning, mobile learning or other forms of computer-based technology has become essential to learning, training, and professional development in both commercial businesses and in schools.

In 2001, e-learning entered China (Tong, 2014). By the beginning of 2002, many Chinese financial agencies and telecom companies such as the Business Bank of China, China Mobile, China Telecom, and other companies had already adopted e-learning (Tong, 2014). In 2003, e-learning was adopted in many rural elementary and middle schools with the support from the Chinese government (Chen, Chen, & Wang, 2009). In this swift development process, e-learning has gradually demonstrated its advantages in saving labor, time, and human resources (Yusuf & Al-Banawi, 2013).

There are several important considerations related to the concept of e-learning. First, e-learning stresses instruction on the internet. Second, it emphasizes the combination of learning with any information-based technology. Thirdly, it focuses on the combination of digital content with internet resources. All three aspects stress digital technology and the process of creating and guiding education by using modern computer-based technology.

The rapid development of web interactive multimedia technology and information and communication technology offers new opportunities to renovate teaching and learning (Md Ali & Richardson, 2012). For instance, mobile learning, or m-learning, refers to long-distance learning by using mobile devices such as mobile phones and PDA devices. Its most outstanding feature is to help learners to study anytime and anywhere (Hockly, 2013).

With increasing usage of the internet and information technology, all aspects of society are stepping into an information age which largely relies on computer science and the operation of multi-media to spread information (Hamidi, Meshkat, Rezaee, & Jafari, 2011). Information technology has penetrated into all aspects of people's daily lives, work, and learning. It also plays an increasingly important role in education due to the great advantages it offers. Computer-based technology can enhance students' cognition development and confidence; it can also inspire students and support their learning by providing various accesses to information (Tamim et al., 2011).

Advances in information and communication technologies have also had great impact on foreign language learning (Jauregi & Banados, 2008). For example, technology is widely used as a tool to support vocabulary learning for English language learners. Nakata (2011) has reported on the effective use of flashcards on the computer to help students learn new vocabulary. Moreover, using technology such as video/audio devices and translating software for language

learning can make teaching more attractive and increase students' engagement. Consequently, information technology has been consistently developed and used in the educational field with far-reaching influences. To a great degree, computer-based technology has turned a new page, especially in education. It can be said that the powerful advantages of computer-based technology are pushing toward an education reformation (Shoffner, 2010).

Along with the rapid development of science and technology, a significant number of Chinese students are using social media and technologies to learn a second language, especially English. Online learning and distance classes have gradually replaced traditional classroom teaching and learning practices. These innovations can promote further development of various apps and technological devices. One reason why technology-supported language learning has become popular is simply due to the convenience it offers.

Traditional language training in China led to many language learners experiencing difficulty in speaking and listening. In China, English teaching methods have long employed a large-class pedagogy mode that focuses on reading comprehension while ignoring the development of speaking and listening skills. Due to the large number of students in English courses, it is difficult for each student to have the opportunity to speak during class. While there is a great demand to learn English among Chinese students, the huge number of students in the classrooms, the lack of interactive teaching methods, and lack of native English language teachers creates a situation where it is difficult for Chinese students to learn English effectively (Wright & Zheng, 2018).

The COVID-19 pandemic era has witnessed an unprecedented use of digital technologies in all fields across the world. Indeed, higher education has been one of the institutions most noticeably impacted. With almost all classes and educational activities moving online (whether

willingly or forcibly) a discussion about the nature and place of educational technology seems inevitable and necessary. Essentially, a prevailing question becomes, how can higher educational professionals make good use of computer-based technology to improve learning and teaching during and after this unprecedented time? Moreover, even before the pandemic, with the development of ever-increasing application of new technologies in education settings, how computer-based technology has changed teaching and learning has long been a topic of interest to many practitioners and scholars. As Selwyn (2017) argues, "the links between digital technology and matters of thinking, intelligence and learning" (p. 71) can date far back to the development of the computer. Specifically, following the development of artificial intelligence during the 1950s, the computer is widely regarded as not only a machine for analyzing data but an educational tool that may influence how we think about data (Cohen, 1993).

To set this broad topic in a specific milieu, it is especially notable that there is momentum toward the integration of new technologies, especially Information and Communications Technology (ICT) in English as a Foreign Language (EFL) classes in China. This trend seems to be largely motivated by a desire to reform the traditional memorization-based pedagogy which had been widely used in second language classes in China (Li & Walsh, 2010). Thus, this qualitative case study aims to explore how computer-based technology can be used to improve relevance and motivation and thus benefit learning and teaching.

This study will use the catch-all phrase "computer-based technology" as its central focus. There are numerous terms used to describe emerging technologies applied to pedagogical practice. Terms such as e-learning, digital technology, and information and communication technology are scattered throughout the literature. Typically, these terms refer to a specific modality or type of technology. In this study, I am interested in a broader sweep of technological

innovations used in EFL instruction. These approaches may be something as simple as PowerPoint or as sophisticated as apps found on cell phones. In essence, I seek to explore how, why, and what results when Chinese EFL instructors attempt to apply the emerging technologies they have available to them in teaching a subject that has traditionally been delivered in a highly regimented manner. Irrespective of the differences in their level of technology, they all have in common the application of some type of cyber connected technology. In other words, all the participants are attempting to apply some level of computer-based technology into their practice. It is this attempt to use some type of computer-based technology that is the focus of the study.

Purpose and Significance of the Study

A number of scholars have focused attention on technology-supportive teaching methods for English. When it comes to the integration of technology in language teaching, there is a commonsense assumption that computer-based technology is inherently beneficial to the learning process. As Selwyn (2017) concludes, few educators would contest the idea that computer-based technology, if properly integrated, leads to some form of learning benefit. However, this overgeneralized view of computer-based technology does not necessarily explain, let alone inform and benefit educational practices in different and unique cultural situations. Indeed, the use of computer-based technology is a complex issue and the topic deserves further and deeper exploration focusing on practices in distinct real-world settings. Consequently, this study attempted to explore how computer-based technology integration may depend on the specific social-cultural settings, skill sets and attitudes of the teachers. It is the desire of the researcher that this study will inform and benefit practitioners by providing insight into EFL classrooms in a distinct setting.

In the past decades, there have been a growing number of studies on the use of computer-

based technology in English language teaching (Cullen, Kullman, & Wild, 2013). This study is of significance because there is not enough research on Chinese higher educational settings (Danli, 2008). Despite a relatively vigorous amount of research on Chinese EFL teaching in primary and secondary education, fewer studies have explored how college teachers use computer-based technology in Chinese EFL classrooms. Moreover, tertiary education can be very distinct from other settings given the difference in the socio-cultural contexts, and more specifically student-instructor interaction and attitudes/expectations of students and teachers towards computer-based technology and language learning more generally. As Behroozizad et al. (2014) argue, based on Vygotsky's sociocultural theory, the shift in the sociocultural context of the EFL classroom leads to the change in the interaction between the learners and teachers, and eventually influence how the learners communicate in their social community (i.e. how they actually use the languages, native or non-native). How computer-based technology influences the instructor-student and peer-to-peer interaction in tertiary Chinese EFL classrooms and eventually influence teaching and learning is a worthwhile area of investigation.

Problem Statement

The purpose of this research was to explore the experiences of a sample of Chinese university teachers of English as a Foreign Language (EFL) on the effectiveness of implementing computer-based technologies in their classes. Specifically, this qualitative research sought to document the participants' views on 1) the types of computer-based technology used in their classes; 2) the role of computer-based educational technology in teaching EFL pedagogy; 3) the potential benefits in using computer-based instructional technologies in EFL; 4) the challenges and/or barriers to the effective use of computer-based instructional technologies in EFL instruction. This research is especially significant as it includes a unique set of educators in

a unique educational setting, implementing emerging educational technologies.

With the urgency of supporting Chinese students in obtaining English proficiency, and the need for research that explores the nature of computer-based technology use in language-learning, this qualitative study is an attempt to explore the current application of modern information technologies in English teaching and learning in Chinese higher education. The findings of this qualitative study may provide insights that will support an on-the-ground understanding of what teachers know and understand about computer-based technology use and the technologies they see as most useful.

Research Questions

It is highly possible that blending traditional learning environments with modern educational technology provide a better environment to train students' English listening and speaking abilities than a sole reliance on traditional, non-technological language learning. My intention for this research was to achieve a deeper understanding of the current strengths, challenges and, opportunities associated with computer-based technology with the hope that I might someday integrate multiple teaching methods to help Chinese students improve their English skills. Thus, four fundamental research questions guided this study:

Research Question #1

What types of computer-based technology do the participants report using in their classes?

Research Question #2

How do the participants describe the role and impact of computer-based technology in teaching EFL pedagogy?

Research Question #3

What potential benefits in using computer-based instructional technologies in EFL do the

participants identify?

Research Question #4

What challenges and/or barriers to the effective use of computer-based instructional technologies in EFL instruction do the participants identify?

Key terms

The following key terms are important for an understanding of this study and deserve inclusion here:

Auxiliary Education Platform: Computer-based instructional tools that have been developed generally for distance, online education and made available to educators and/or institutions.

Computer-based technology: A broad concept referring to any instructional assistance that is either constructed and/or delivered from some type of computer technology. Computer-based technology can be as rudimentary as the use of PowerPoint to as sophisticated as complete online curriculum.

Distance learning: Refers to educating learners who are geographically distant, in contrast with traditional face-to-face, classroom education (Moore, Dickson-Deane, & Galyen, 2011).

E-learning: Refers to a type of online learning that takes advantage modern technology and learning resources found on the internet (Triacca, Bolchini, Botturi, & Inversini, 2004). This method combines virtual classroom design along with digital techniques which facilitate computer, web, and internet-based learning (Mashhadi & Kargozari, 2011).

iClass: An interactive auxiliary educational platform on cloud. It is a computer-based technology app designed to enhance interaction between teachers and students. Universities, departments, or individual instructors can create their own iClass course site and tailor it according to their preferences and needs.

Information technology: Refers to the processing of information that is systematically transferred through a variety of communication modes, ranging from the internet to social media (Hamidi, Meshkat, Rezaee, & Jafari, 2011).

International University: Chinese institutions that offer courses or majors specifically focused on equipping students to work and function in international settings or occupations. Foreign languages, such as English, are emphasized in the curriculum.

Mobile learning: Refers to the ability for learners to study without the limitations of time and space as they use mobile devices, such as a laptop, an iPad, or a smart phone (Hockly, 2013).

Multimedia technology: The integration of digital resources such as words, pictures, videos, music, and sound into an interactive whole by programming them into the computer and displaying them in a lively and dynamic pattern (Mohd Zin et al., 2012).

Rain Classroom: an auxiliary educational platform highly popular in China. Rain Classroom is a mobile app developed by Tsinghua University. Essentially, Rain Classroom is a plug-in for WeChat, a smartphone instant messaging application. Rain Classroom allows teachers to post course resources on the platform, administer tests, and communicate with students. Thus, Rain Classroom is an interactive teaching app.

Limitations and Delimitations

Limitations exist in all research studies (Cardon, 2000). This qualitative research includes a case study of four Chinese English teachers at a university in Beijing. This feature of the study represents both a limitation and a delimitation. It is a limitation in the sense that a small, nonprobability sample cannot be generalized to larger populations. This is of course the most obvious limitation of all qualitative research efforts (Yin, 2017). While the sample size is adequate for qualitative case study research, the simple fact remains that the results are not

generalizable to teacher populations of other Chinese colleges.

The choice to use only a small number of Chinese English Language teachers is also a delimitation. The parameters of the study require clear criteria regarding the appropriate participants. As such, the deliberate use of a specific group of potential participants is a delimitation necessary for the study.

Another important limitation of the study is associated with cost. It was anticipated that some of the participants might not have access to the internet/Wifi, electronic or mobile devices. This limitation proved to be of minimal concern as the COVID-19 pandemic forced all the participants to engage online and, thus, were prepared to participate online.

A related anticipated limitation was the uncertainty on what kinds of technologies were available to the participants. At the outset of the study, it was taken into account that some teachers would be more limited in what they can report regarding the types of computer-based technology supports their language instruction. As for mobile learning, there are some limitations such as the cost of a proper device, the screen size, student unfamiliarity with smart phone functions, shortage of mobile infrastructure, and the quality of software and hardware. This limitation required that the key concept of this research, computer-based technology be conceptualized in a very general manner in order to accommodate these various circumstances.

Another anticipated potential limitation was that some participants may not have full command of English. While the personal interviews were conducted in Mandarin, it is unavoidable that some English would have to be used. Thus, there existed the potential that some words and concepts might be misinterpreted. Consequently, part of the questions may not be understood or answered correctly, resulting in incomplete or erroneous data. The potential for such inaccurate data may have affected some of the results of the study, which is a common

challenge for qualitative researchers (Squires, 2009). To assist in ameliorating this potential limitation, I was especially careful in the translation of the interviews and mindful to request clarification when necessary during the interviews.

Conclusion

Due to the recent increase in the frequency of international communication in China, there is a higher standard for English, especially in speaking and listening than in the past (Johnson, 2009). Therefore, Chinese students need to improve their English communication skills by becoming familiar with the English-speaking environment more rapidly than ever. This study examined the role of computer-based technology in that endeavor.

Computer-based technology infuses new educational modes into traditional education and offers improvement to what can be a monotonous teaching mode, increasing student interest in the teaching process (Anderson & May, 2010). The study is important because there is a significant increase of computer-based technology in English language teaching in China. What this portends for the future remains to be discovered. This study is a step toward that discovery.

CHAPTER 2: LITERATURE REVIEW

Introduction

The advent of digital technologies, as Davidson and Tomic (1994) assert, have inspired innovation and rethinking of the old ways of language teaching and learning. Interestingly, some scholars even go as far to argue that the new technologies may serve as a kind of panacea for EFL teaching problems, among which are lack of relevance and motivation (Nunan, 1989; Cohen, 1993). Irrelevance and lack of motivation found in learners are indeed problems evident in most traditional EFL classes in China. However, the realization of computer-based technology's potential does not come as inevitable – instead it largely depends on in what ways and under what social-culture situations people use technology (Cabanatan, 2003).

Technology-supported teaching originated in the 1960s. The United States is the first country in the world to carry out the research and practices in Computer-Aided Instruction (CAI). Stanford University started the CAI research as early as 1963 and successfully developed the IBM1500 teaching system through cooperative work with the IBM Company in 1996. The IBM1500 teaching system has been used as the auxiliary teaching method for many courses, including the foreign language courses.

Since that time numerous countries have been working on educational technology over the past years. There is also a great deal of research about the effectiveness of technology-supported teaching. Chun and Plass (1996) found that students master unfamiliar words with graphic and acoustic image better and faster than words without the help of multimedia. Mathews (1997) studied the effects of interactive disk-aided teaching in reading skills. She pointed out that those students who were guided by CD-ROM tended to repeat the whole content of the text more completely than those guided by text alone.

Given the complex context framing this study, this literature review will examine the general use of computer-based technology in Chinese education followed by a discussion on the potentialities and challenges of technology in Chinese classrooms. Finally, the review will examine the literature specifically focused on the use of computer-based technology in English language instruction and learning in Chinese schools.

Various Uses of Computer-Based Technology in Chinese Education

There are numerous studies focusing on the application of technology in teaching in domestic China. Through implementing multimedia in teaching about English nations' cultures, Shi huifeng (1999) found the application of multimedia improves students' learning achievements and cultivates their interests in foreign cultures and even breaks down fear towards the English language. The findings suggest using multimedia to teach English is actually necessary since almost all the senior students related that their interest in English was made greater when multimedia was included in instruction.

Multimedia Technology

Given the above discussion, obviously multimedia technology is important in Chinese education. Multimedia technology refers to comprehensively processing and managing the various kinds of media information such as the text, figures, numbers, pictures and images, flash, video, and sound to make the computer users interactively access real-time information (Wroblewski, 2013). When multimedia is utilized in such a way as to take advantage of a full array of communication, learning is greatly enhanced. Thus, any instructional design using multimedia needs to be highly organized and displayed (Sandholitz, 2000). Moreover, there are a variety of types of multimedia techniques, each representing its own strengths and shortcomings.

Text. Teaching with multimedia frequently and simply provides text of educational

material to students. Often, this is accomplished with the assistance of a computer to access PowerPoint slides or information from the internet. This is a common method to provide students with an opportunity for self-paced learning. Additionally, some teaching software provides learners with comments and feedback, as well as guidance based the individual's learning needs. This type of multimedia offers the advantage that text users don't have to be specifically trained to access teaching material. The text can be reread again and again, which makes it possible for students to better understand the content. Moreover, reading text is not necessarily limited by time as long as students have access to a text-browser.

Pictures and Images. Different learners have different learning methods and habits. Some are good at learning from reading text while others prefer to observe, recognize, and discover the essence of the learning materials with the help of pictures and images. Pictures and images are considered to be the non-text information, which can be used to convey abstract teaching content to the learners through a relatively more concrete and direct way than text alone. The use of pictures and images offers learners various learning methods and is especially effective with visual learners. Furthermore, pictures and images also help to change abstract content into concrete content. Pictures can also be used for esthetic purposes to enhance the interface of the computer and highlight the learning atmosphere.

Video Clips and Sound. Video clips are dynamic and can stimulate learners' sense of visual learning. Application of sound in instruction can make learning more interesting and direct. The addition of video clips and sound to teaching can improve students' interest in learning. With the development of multimedia technology, the processing of sound and video have made it possible to combine TV-style visual and audio information with the interactive functions of the computer so as to create integrated teaching material with sound, videos, and

pictures. This type of multimedia usage offers such advantages as information variety, the interaction of multimedia, integration, digitalized information and the real-time information (Chen, 2005). Thus, the use of video clips and sound can help achieve interactive work instead of unidirectional or bilateral transmission aspects of instruction.

Distance Learning (E-Learning)

Distance learning, also referred to as e-learning, is a kind of formalized system of teaching and learning designed for delivery over geographic distance through cyber and/or web-based technology. Distance learning offers teaching and learning opportunities for those who can't experience traditional, face-to-face education. Because distance learning is more flexible in time and space and it can nearly reach everyplace, it offers learners greater options and opportunities for learning.

There are various kinds of distance learning. Traditionally, correspondence study provided my mail constituted the primary means for distance learning. Later, instruction via television and broadcast teaching became methods for distance learning. More recently, these modes of distance learning have been replaced with a variety of forms of e-learning. Typically, e-learning involves online courses or prepackaged electronic courses provided to students learning in remote locations. In fact, e-learning, in all its various forms, is now the most dominant form of distance learning (Bernath, 2009). Distance learning has many advantages but it also suffers from shortcomings too. For example, distance learning can make use of educational resources to educate large numbers of people over vast areas but it can also lack significant interaction between teacher and student.

According to He (2013) and Chen (2009), internet-based distance teaching can be divided into two general teaching mode: information imparting teaching and cooperative teaching.

Information imparting mode is characterized by a top-down approach in which instruction is imparted by the teacher down to the student. Essentially, instruction is rather one-directional and, in that regard resembles traditional classroom instruction. Information imparting teaching is generally delivered in two forms. One form is the synchronous teaching and the other form is the asynchronous teaching. The former refers to the real-time teaching, which is similar to the traditional classroom teaching. The interaction between the teacher and the students can be achieved using the real-time video and audio. This kind of teaching pattern requires relatively high network speed and some other related equipment such as a camera and a microphone. The asynchronous teaching means the teachers create instructional content and store it on a web server. Students can subsequently access these teaching materials through the internet. Furthermore, students can exchange their ideas with teachers through means of e-mail, a learning management system, or even chat software.

The cooperative teaching pattern refers to the students' ability to be interactive and communicate among themselves after studying the same learning materials. In this instructional mode, students perform various roles in the learning process, such as the competitor, coworkers, classmates, problem-solvers, and guides (He, 2013). A challenge to using cooperative learning in distance education is providing the appropriate and effective means for students to meaningfully engage in cooperative learning activities (Chan, 2011).

Cell Phone Technology

Today, many kinds of phones, especially smartphones, have greatly changed people's daily lives. Moreover, with the development of advanced communication technology, the evolution of cell phone technology has opened up new channels for students' learning. Wechat, QQ, e-mail, homework helper, learning treasure, pocket teacher, and happy learning have greatly

changed students' learning opportunities (Wu & Marek, 2009).

Xu and Dai (2013) researched different teaching practices with Wechat, an interactive format used to guide students' ability to preview, review and practice the English language. Unfortunately, the authors report there is limited evidence to make conclusions about adult learners' views of Wechat as an effective way to learn the English language.

Wu and Marek (2009) studied the CET education with the support of Wechat. Specifically, their research sought to examine how Wechat might assist college students to pass the CET exam in China. Their work found that Wechat can be an effective instructional tool. However, the authors point out that the English content on Wechat must be short and the English vocabulary should be practical and suitable enough for the learners who have no systematic vocabulary.

Similar to other researchers, Guo (2014) argues that cell phones can be an effective teaching format. In her study on the application of mobile technology to English teaching, Guo states that the quality of follow-up services should be ensured and planned reasonably in order to offer the learners necessary instructional support. In this way, cell phone technology can be a useful tool for Chinese learners.

Potentialities and Challenges of Computer-Based Technology in Chinese Education

Fan and Antle (2020) investigated the role of an augmented reality (AR) app in improving rural Chinese students' English learning. The AR technology can support Chinese learners to better grasp the English language's system of rules by virtual placing them in unique learning environments. In such a virtual reality space, students can ask questions and interact in order to authentically learn language rules along with having interesting experiences and, thereby, enhancing learning.

Klimova (2018) also asserts mobile phones and smartphones apps can assist Chinese students learn English. The results of her work reveal that mobile phones and other apps can have positive influences on English learners. Increased proficiency was evidenced in vocabulary development and even in the improvement of student learning motivation. Gangaiamaran and Pasupathi (2017) also analyzed the use of mobile apps for English teaching. These authors argue that mobile apps (including laptop computer, iPod, iPad, and smartphone platforms) provide teachers with convenient paths for English teaching with no restrictions to time and place.

After examining the relevant literature, there is considerable evidence as to how computer-based technology has improved second language learning, both at home and abroad (Thorne & Payne, 2005; Zhao, 2003). In an overview of practices and research concerning the use of computer-based technology in language teaching, Warschauer and Healey (1998) concluded that, if used properly, emerging computer-based technologies can greatly benefit both learning and teaching by creating a more interactive learning environment, motivating learners, and offering authentic language input derived from real life situations. Nevertheless, Cabanatan (2003) warns that computer-based technology's beneficial potential does not automatically promise positive results, and the realization of improved learning depends on how effectively each teacher uses technology in his/her own classroom. Similarly, Bitner and Bitner (2002) assert that the effectiveness of computer-based technology integration will largely rely on the skillsets and attitudes of teachers.

Therefore, it can be concluded that the use of educational technology and how it affects learning is a complex issue and the topic calls for more in-depth study in different and specific settings. Among studies about the use of technology in language teaching in China, some scholars recognize the complexity of the issue and focus on specific settings. However, most

scholars are more concerned with secondary or primary education. For example, Li and Walsh (2010) conducted a large-scale study on the use of ICT with 450 secondary school English teachers in Beijing, China, and found that although most schools offer a satisfactory learning environment with computers, the use of computer-based technology is mainly limited to PowerPoint presentations. They pinpointed several negative factors affecting the effectiveness of computer-based technology, including lack of time on the teachers' part and inadequate professional support and training. Similarly, Zhong and Shen (2002) examined two multimedia secondary EFL classrooms in China and concluded that "the traditional Chinese notion of teaching" and teacher-centered pedagogy needs to be redefined to allow for "a learner-centered multimedia language classroom to emerge" (p. 39). Indeed, the research to date concerning Chinese secondary EFL classrooms demonstrate that the effectiveness of education is by no means inherent but depends on many complex social-cultural factors which are likely to be different from one setting to another.

Computer-Based Technology and English Language Learning in China

The use of various types of computer-based technology to assist with English language learning in China has generated a great deal of research. It has also revealed mixed findings and conclusions. This section presents some of the research on this topic and considers the range of findings.

Bond (2000) claims those teaching English in China face many difficulties. Not the least of these challenges is the trepidation among students in attempting to learn English. Bond claims that half of Chinese college students balk when presented with instructional guidance largely due to their hesitancy engaging in English learning. Sandholitz, Ringstaff, and Dwyer (2000) report that teaching English as a foreign language with computer-based technology is a double-edged

sword. Students often have fun with the novelty of the technology but remain reluctant and apprehensive in learning. Chen, H. (2005) too found that an eagerness to learn English is greatly hampered by a lack of skills in the English language which renders students very self-conscious and trepid.

Zhang C. L. (2012) identifies a variety of issues related to the use of computer-based technology in high school English instruction. He relates that frequently the application of computer-based technology is limited to the using PowerPoint (PPT) slides. Moreover, there is a general misunderstanding that using PPT teaching in teaching is actually using computer-based technology. Zhang combined both theoretical analysis and examination of teaching practices to ascertain how and under what circumstances computer-based technology aids instruction in English. First, he analyzed multimedia-aided teaching through the lens of constructionist theory, audio-visual theory, learning style theory, and multiple intelligences theory. Then he considered the application mode of computer-based technology in classes along four aspects; reading, writing, listening, and speaking. Specifically, Zhang conducted a study in a key school with 65 students as the research participants. The objective was to determine whether the computer-based technology in English teaching is effective toward increasing students' learning interest and improve learning outcomes. The results show that teachers could effectively apply various types of multimedia through computer-based technology such as music, e-text, video, PPT and screenshots of movies and the news. Indeed, 90% of the students reported that computer-based technology helped them greatly improve their English language skills. Besides in-class technology-supported English learning, after-class computer-based technology also assisted students to study English more efficiently.

As college English teaching reforms brought on by computer-based technology become

more widespread, new ideas about language learning and teaching have expanded in Chinese colleges. As a result, it is believed that Chinese students may gradually become awakened to their autonomy and ownership in learning (Bond, 2000).

But this process is not without its serious challenges. Zhang. R. (2006) studied how computed-based technologies help aid in English instruction. She specifically examined whether the application of net-based resources assists college students' English language learning. As part of her study, Zhang randomly selected 120 college students in Chengdu, China. The results of the research revealed that although Chinese college teachers are largely interested in utilizing the internet in their teaching, they did not offer their students adequate help and instructions. Unfortunately, students were not sure about how to use the net-based resources offered to them in English learning. Even though they used the internet in their learning, the majority of the participants found their use of the internet as purposeless. This perspective was largely due to insufficient help and instruction from their teachers. The results revealed that although students show great interest in combining the internet with English language learning, they felt confused about how to take full advantage of the abundant resources available on the internet.

In an interesting study, Chen. K. (2010) sought to examine how internet-based English learning might be used to help students to discern appropriate emotional responses. Central to this study were such questions as: How can emotional situations be included in the web-based English learning process? What are common emotional problems might be simulated in web-based instruction? How do students take advantage of these emotional factors to promote the web-based English learning? The research included 40 Chinese literature majors. The results revealed that when students were presented with internet-based multimedia teaching materials, especially when they are presented with the audio-visual videos and other related materials, they

are much more likely to actively participate and accurately interpret appropriate emotional responses. However, when they were presented with the text alone, they evidenced no real emotional reactions, most of them showed “no feelings,” and some were even bored.

Ji (2014) examined how computer-based technology, most notably an internet-based approach, might aid in teaching English among college students. The results of her investigation showed that students in the study welcomed the use of internet-based learning. But the findings also revealed some important nuances and implications. While the students reported feeling a high level of autonomy in their own learning pace, they felt uncertain about the effectiveness of their learning strategies. Significantly, most of the students demonstrated mediocre motivation and showed a lack of initiative to engage in internet-based English learning. They also evidenced a strong dependency on their English teachers and displayed little confidence in their ability to study English. Motivation inside the class was highly linked with autonomous learning ability, suggesting that traditional learning methods still dominate in China. Therefore, with reformed learning environments, Chinese teachers should consider modifying their roles and cultivate learning strategies that encourage students’ intrinsic learning motivation in order to achieve better learning outcomes.

Zhang. X. (2009) applied social interactive theory to consider how instruction using internet resources might reform traditional Chinese English language teaching practices. Social interactive theory holds that the most effective way to learn English is through interaction. Zhang compared learning through traditional ways of college English teaching to learning utilizing an internet-assisted multimedia and the task-based approach. In the latter approach, the students were guided to think independently and the teaching activity created opportunities for students to try different interaction skills through group work. The multimedia teaching did not mean the

teachers played an inactive role in instruction. Rather, their role included taking such roles as helping, coordinating, advancing, and guiding. She concluded that the multimedia internet teaching approach offered a good environment for applying the task-based approach. By this means, students were placed in various true communication environments that were interactive, controllable, imitative, and active. This method largely improved students' learning as well as assisted in increasing their interest in English learning.

Li, Z. (2010) analyzed the advantages of computer-based technology in college English teaching. He divided the advantages into two levels, one is the teacher's level and the other is the students' level. For teachers, the application of computer-based technology helps save time and improve teaching efficiency. For instance, in the traditional teaching pattern, writing on the blackboard takes up a lot of instruction time. However, the application of multimedia aids helps to add more time for actual instruction. Computer-based technology also helps to highlight key and difficult teaching points allowing teachers to more effectively clarify problematic material. For students, computer-based technology assists them to get into deeper into a foreign language more rapidly. With well-organized course material, computer-based technology enables students to efficiently work through course material and gain greater language comprehension. Additionally, students' interest in learning English is enhanced. Cognitive comprehension of the language is increased and teachers can take advantage of the computer-based technology to make the instruction more interesting and attractive.

Moreover, according to Li, Z. (2010), computer-based technology, if properly delivered with good organization, can create a more cooperative relationship between teachers and students. That is, teachers and students can share computer-based resources, practical experiences, and scientific achievements on the internet. In this way, teaching with computer-

based technology can change the traditional relationship between teachers and students and further establish a more equal relationship in learning. Such a relationship offers each other the chance to learn together and learn from each other. In a traditional teaching pattern, teachers are at the center of the instruction dynamic. However, the inclusion of computer-based technology encourages greater participation of students and they are invited to create a more authentic English language environment. The application of computer-based technology can help improve students' listening and speaking abilities through the use of a wide variety of multimedia aids. Such a varied approach lets students get involved in an English language environment in a more immersed fashion and becomes part of their daily lives. Ultimately, this teaching pattern is more student-centered and under this situation students have greater opportunities to express themselves in English.

Conclusion

The review of the literature on computer-based technology and English language learning among Chinese college students reveals a prominent theme. Namely, scholars report the reoccurring theme of autonomy. This theme is so clear that Gao (2011) reported specifically on this issue in an article entitled, "College Students' English Autonomous Learning Under Network Background." In this effort Gao states that with the development of the internet and other computer-based technology, Chinese college students are becoming more active and their academic learning more effective. In fact, Gao argues that as a result of living in an information age, autonomous learning has become the most important goal in Chinese education reform. Nevertheless, Gao argues that Chinese college students still lack autonomous learning abilities. With the popularization of various computer-based technologies, more and more students choose to take advantage of internet resources and methods to learn English. However, an ethic of

autonomous learning is still in its infancy. This represents a challenge for both teachers and students.

Given the nature of the literature review, this exploratory research will need to be sensitive to the challenges and opportunities presented by autonomous learning reported by the participants. This may or may not emerge as an important aspect in their experiences. Likely the data that will serve to answer research questions #3 and #4 will provide insight on the issue of autonomous learning. Whatever the findings reveal, the literature suggests that autonomous learning and computer-based technology is important to both teachers and students.

CHAPTER 3: METHODS

Introduction

In terms of paradigm, I align myself with the interpretivist perspective as opposed to the positivistic approach. Interpretivists value subjective realities that "consist of stories or meaning produced or constructed by individuals within their 'natural' settings." (Hesse-Biber, 2010, p. 26). There are three reasons for my alignment with this paradigm. Firstly, as Cornbleth (1990) describes, teaching and learning should be seen as a process subjectively experienced by individuals, as a series of events where instructors and students interact with each other and negotiate the complexities of the meaning in a particular context. In this respect, teachers' subjective perceptions should be valued. Cornbleth's view also values the interaction between learners and teachers, a view that informs this study. Secondly, I find the positivistic approach to curriculum inappropriate for exploring real-world practices, identifying nuances and more importantly, exploring the contexts behind those nuances. Lastly, as an educational practitioner and researcher myself, I am empowered to understand and interpret the data as an "insider." I thus believe my personal experience will help me gain deeper understanding when interpreting data from the interpretivist point of view.

Research Design

This study involves a case study of four Chinese teachers of English as a Foreign Language in a university in Beijing, China. Case studies require the triangulation of data derived from different data sources (Yin, 2017). In order to collect the appropriate data to answer the four research questions, this study employed three data sources: personal interviews with the four participants, direct observations of their English instruction classes, and analysis of relevant site documents. However, data taken from the personal interviews contributed the

largest and richest share of data. While the findings result in part from all three data sources, they particularly reflect the data from the personal interviews.

I conducted individual semi-structured interviews with the four college EFL teachers to investigate their subjective views of their teaching experiences and the use of computer-based technology in their own classrooms. Each interview lasted about an hour, with seven structured interview questions prepared beforehand (Appendix A). I generally stayed close to the interview structure but also probed areas of particular interest to the teachers and asked follow-up questions soliciting specific examples.

In order to minimize problems with comprehension as much as possible, observation of the participants' class instruction was conducted as much as possible under COVID-19 conditions. This direct observation of teachers and students provided first-hand data and resources. Observations enabled me to explore students' reactions to their teacher when using computer-based technology in the classrooms.

A few follow-up interviews were conducted in order to guarantee the accuracy of the information obtained. Additionally, documents including videos, pictures were collected to help me to better understand the way computer-based technologies were being used.

Participants and Setting

I used purposive sampling to recruit four Chinese EFL college teachers who have experience in using computer-based educational technology. While I conducted personal interviews with four individuals, the number of participants is not normally considered as a priority in interpretivist studies. Indeed, interpretivism is mainly concerned with "interpretation, meaning and illumination" rather than generalization and prediction (Usher, 1996, p. 18). Thus, a key aspect of the interpretive approach in education research is the centrality of the researcher

and his/her own interpretation of the data as opposed to the specific instruments of data collection (Sparkes, 1992). To borrow Sparkes's words, the researcher is herself the instrument.

Still, I attempted to minimize bias by choosing participants that 1) have experience in using computer-based education technology so that they can provide richer and more reliable data; 2) are from a top tier university as they are more likely to possess the level of experience with computer-based educational technology that will make the findings more meaningful and useful.

Data Collection

Yin (2017) recommends a variety of sources of data collection useful for case studies, including site documents, archival records, personal interviews, direct observation, participant observation, and physical artifacts. Creswell and Poth (2018) also recommend creating a matrix of information for each type of data source used in qualitative research. For this study, data sources included personal interviews with participants, direct observations of class instruction, and an analysis of relevant site documents (images, videos, notes, text, recordings and so on).

Adapted from the Burke Reading Interview (Burke, 1987), the interview questions assisted to yield insights into the application of various computer-based technologies in college EFL classes. I drafted seven structured questions beforehand (see Appendix A), and each question was designed to explore one or two aspects of the research questions and some questions were followed by sub-questions to solicit in-depth data from the interviewees. In other words, the seven questions were centered around the four research questions guiding this research effort.

I contacted experienced EFL teachers in order to obtain a general idea of their experience of using computer-based technology and explain the general nature of the research. During the

personal interview I encouraged participants to talk about their own personal experiences and perceptions and provided a safe and comfortable environment for them to do so by ensuring their confidentiality throughout the study. I also kept the conversation going by asking follow-up questions to solicit specific examples or details as necessary.

The interviews lasted about an hour, conducted in Mandarin and were later translated in English by myself. All of the interviews were recorded and transcribed for easy reference and analysis.

Data Analysis

By carefully examining the four participants' working experience and opinions about computer-based technology utilization, I attempted to examine how these participants generally use modern technologies in their EFL classes. As stated above, seven personal interview questions were designed to obtain the data required to answer the four fundamental research questions structuring this investigation. The Matrix provided below (Figure 1) was used to aid in the analysis of the data derived from the personal interviews, the direct observations of class instruction, and relevant site documents.

The data obtained from the various data sources will be integrated together and will be subjected to thematic content analysis in order to identify important themes. The themes will then be organized in the form of four dimensions (the types of computer-based technologies use, the teacher's perceptions of computer-based technology, the use and influence of computer-based technology, the implication, etc.) according to the four research questions. Proceeding in this way, I will glean the data for answers to the basic research questions.

I engaged in two types of analysis in order to provide answers to the four research questions. First, I performed within-case analysis of the data to identify emergent themes for

each individual case. The results of the component of the data analysis process are reported in chapter 4. Next, I performed a cross-case analysis of the data. In this step, I considered the various emergent themes included in the within-case analysis and collapsed those into shared, cross-case themes. The results of the cross-case analysis are reported in chapter 5.

Figure 1. Data Analysis Matrix

Participant	1	2	3	4
Attitude toward the application of technology in EFL classes (positive/negative)				
The technology used in EFL classes (For example, PowerPoint, PC, IELTS speaking practice, dubbing competitions, portable mobile apps, etc.)				
The university role in the application of technology				
Influences on students' quality of learning by technology				
Iinfluences on teachers' quality of teaching by technology				
The future application of technology in EFL classes				

Research Ethics

I obtained approval for this research from the George Fox University Institutional Review Board. Once that I received that approval, I recruited potential participants through email. I discussed the nature of the study and obtained informed consent prior to collecting any data. The participants understood that the interviews would be audio-recorded and their participation would be kept confidential. None of the participants are personally identified and I use the pseudonyms of May, June, July, and August when reporting the findings. Also, the data are only accessible to the researcher and the data sources (i.e., personal interview recordings and transcriptions) continue to be secured and available only to the researcher. All research materials will be destroyed following successful completion of the research.

The research participants are college EFL teachers with whom I have some acquaintance but with whom I have no work-related supervisory role. As educational practitioners, and possibly researchers themselves, I believe the participants would be positioned to provide trustworthy and rich data and would be willing to contribute to the study as its' findings will be relevant to their own work. Having personal acquaintance with the participants had the obvious advantage of assisting in recruiting and establishing immediate rapport. Yet it had the disadvantage of posing a danger to objectivity due to the increased familiarity with the participants. As such, I made a serious attempt to maintain objectivity through the use of established creditability procedures for qualitative researchers such as member checking, thick description, and appropriate time in the field (Creswell & Poth, 2018).

Potential Contributions of the Research

Potential contributions of the research include the possibility that this research will provide teachers with greater opportunities to think more purposefully about technology usage for

language teaching. It might also promote the professional development of teachers as this research documents and describes English speaking and listening modes with the support of computer-based technology.

In today's rapid development of information technology, the further integration of computer-based technology is likely to benefit many English teachers. An objective of this study from the beginning was to better understand how technology use supports language teachers. Its's findings may cause people to take up questions about the most effective use of technology to support language teachers. It might also challenge readers to consider how teachers might enhance emotional communication with students with support of computer-based technology.

CHAPTER 4: FINDINGS

Introduction

This study examined the teaching experiences of four college EFL teachers in a university in Beijing, China. The results of this study primarily derive from the interview data with four Chinese EFL teachers who use computer-based technology. In this chapter, I first provide a biography of each participant along with a discussion of their experiences in using computer-based technologies. Direct quotes taken from the interview are used to document the participants' experiences and perceptions. Further, the findings are presented as within-case analysis as opposed to the more common cross-case analysis (Yin, 2017). Specifically, I identify the prevailing themes that emerged from each unique case, thus the within-case analytical procedure.

In this case study, I personally interviewed the four participants. The research questions guiding the study included:

Research Question #1 What types of computer-based technology do the participants report using in their classes?

Research Question #2 How do the participants describe the role and impact of computer-based technology in teaching EFL pedagogy?

Research Question #3 What potential benefits in using computer-based instructional technologies in EFL do the participants identify?

Research Question #4 What challenges and/or barriers to the effective use of computer-based instructional technologies in EFL instruction do the participants identify?

In the effort to answer these research questions, I conducted a total of eight interviews, two with each participant. The personal interviews were supplemented with class observations

and course materials. Nevertheless, the personal interviews provided the most significant data in this study.

Demographic Information and Research Setting

I used pseudonyms to identify each participant and their school in lieu of their real names. Participants were named after the four months of the year. Table 1 provides the demographic information of each participant.

Table 1. Demographic Information of the Participants

Participant	Sex	School	Years of Teaching	Teaching Subjects
May	F	Beijing	7	Comprehensive English Reading, Writing, Audio-Visual Movies, Academic Exchanges and Performance
June	F	Beijing	16	Intensive English Reading and Writing
July	F	Beijing	18	The New Progressive College English (intensive reading, listening and speaking)
August	F	Beijing	17	Intensive Reading, Listening, and Speaking, Anglo-American Culture, Science Technology Literature Reading.

All of the participants were serving as an English teacher at the time of the data collection in the School of Humanities at the same university located at in Beijing. All of them had more than five years teaching experience with a range from seven to 18 years. The School of Humanities, formerly called the School of Languages, merged with the School of Law to become the School of Humanities. The college's English education includes three departments: Professional English, Graduate English and College English. Additionally, the college includes departments in Japanese, Russian and French minor languages, Law, and Teaching Chinese as a Foreign Language.

The School of Humanities makes English a significant part of the curriculum. The proportion of credits is notably greater than that of non-international colleges. The school is organized around three teaching and research offices: College English Teaching and Researching Office which is mainly responsible for the comprehensive English listening and intensive reading courses in the entire school for undergraduates and the teaching of English for the university's freshmen and sophomores. The second is the Postgraduate English Teaching and Researching Office which is responsible for the English courses offered to graduate students in various majors. It specifically focuses on Academic English and Workplace English. The third is the Professional English Teaching and Researching office and is responsible for the English teaching of English majors, such as linguistics and English literature students.

It should also be noted that the university also includes an "International College" that places great emphasis on international literacy. International literacy refers to the ability to conduct deep communication in the interactional space. The demand for international colleges is very high in China and students must work hard to demonstrate and improve their communication skills.

As part of its effort to make English a critical component of its mission as an international school, the university has developed a course that combines online and offline teaching to help students further develop their English comprehension skills. It is called the "university MOOC." Moreover, it also has initiated large-scale, open online courses as part of the "Internet in Education" initiative. Both English instruction and the use of computer-based technology has evolved to be significant components of the university where the participants teach.

Of special note are two auxiliary instructional platforms central to the university's computer-based instructional technologies emphasis. The university makes tremendous use of iClass and the Rain Classroom, both are downloadable apps designed to facilitate instruction. Thus, these participants have ample experience with opportunities to employ computer-based technology with English instruction.

iClass is an interactive teaching and learning platform on cloud. It is a computer-based technology app designed to enhance interaction between teachers and students. Universities, departments, or individual instructors can create their own iClass course site and tailor it according to their preferences and needs. The platform consists of a "Teacher Platform" and a "Student Platform." In the Teacher Platform, instructors can post various course information and assignments while students using the Student Platform can access those materials and upload completed assignments. The Teacher Platform also allows instructors to respond to students, evaluate assignments, and provide feedback in real-time. The iClass app also includes an offline mode. This mode is especially helpful when internet connectivity is unstable or unavailable. Instructors can set any topic on the offline mode. Students can download materials when they have access to the internet. They may then have access to the material when offline and upload completed assignments once again when the internet is once again available to them. This offline feature makes iClass a particularly appealing computer-based instructional technology.

In addition to iClass, instructors at the university are encouraged to use Rain Classroom. Rain Classroom is a highly popular mobile app in China and largely developed by Tsinghua University. Essentially, Rain Classroom is a plug-in for WeChat, a smartphone instant messaging application. Rain Classroom allows teachers to post course resources on the platform, administer tests, and communicate with students. The platform is also used to automatically and instantly

collect course materials from students. Thus, Rain Classroom is an interactive teaching application.

Rain Classroom is convenient and easy to use. Real-time questions can be answered and on-screen interaction in class is available allowing for convenient communication and timely feedback. In addition, small assistants, such as classroom check-in and automatic task reminders, are provided to save both the teachers' and students' time. Rain Classroom offers significant advantages in lectures, class and group meetings, activity displays, etc. Students use a WeChat scan code to access PowerPoint (PPT) slides, communicate and interact through their mobile phone, and students can also give feedback after each class session. Perhaps the major disadvantage of Rain Classroom, at least in the estimation of some of the participants, is its overuse.

It needs to be noted that while the university does not require teachers to adopt computer-assisted technology, it does highly encourage them to do so. This is especially the case for either iClass or Rain Classroom. Likely for that reason, iClass and Rain Classroom figure prominently in the teaching experiences of the participants.

Within-Case Findings

The within-case analysis produced extremely rich findings. These findings are organized and presented as themes unique to each participant. While some of the themes are shared across participants, many others are distinct to the specific participant and represent the unique experience of the individual. Additionally, there is no attempt here to report every type of computer-assisted technology used by each participant. The findings revealed that many of them use an extremely wide range of resources. Rather, I focus on the types of computer-assisted technologies most prominently described in their narratives.

Participant One: May

May is a lecturer in the School of Humanities and is located in the third English Teaching and Research Department of the University. The department primarily caters to undergraduates majoring in non-English courses and students from the International College. May has been a member of the university for seven years and primarily teaches comprehensive English reading, writing, and audio-visual courses for freshmen as well as an elective course called "Audio-Visual Movies," and academic exchanges and the performance of sophomores. The Audio-Visual Movies course trains students to acquire leadership skills based on subject knowledge and comprehension.

She covers three English majoring students, from Telecommunications Management, E-Commerce, and Internet of Things. Recently, she had also been involved in a hybrid online and offline course on UMOOCs platform, entitled "Chinese Cultural Heritage and Technology Innovation." It is a public elective course offered by the university and incorporates the UMOOCs approach.

May's students vary by course. The General English reading and writing course and the Academic Communication Skills course typically enroll approximately 32 students each as is the case for the listening and speaking course. Elective courses, such as audio-visual course, for the International College typically have 50 to 60 students. The online and offline Chinese Cultural Heritage and Technology Innovation course generally enrolls around 20 students all offline.

Research Question #1 What Types of Computer-Based Technology do the Participants Report Using in Their Classes? Like all the participants, May uses various forms of computer based technology. Indeed, the various data sources (taken from the interviews and observation) revealed the many applications of computer-based technologies May utilizes as a

college teacher. One theme specifically directly connects the first research question and is discussed here.

Emergent Theme: The School Highly Encourages the use of an Auxiliary Educational Platform. While May uses a wide range of computer-based technology, she specifically noted that the school expects teachers to use the auxiliary educational platform iClass for easy data integration purposes. This auxiliary educational platform is a major focus in her teaching experience. May indicated that most teachers also access pigai.org as their default platform, although it too is not required by the school. Nevertheless, she related that it is recognized by everyone. Her listening and speaking course is most closely integrated with computer-based teaching technologies.

May related that due to differing teaching practices, students' home network environment, and different classes taught, it is impossible for every teacher to adopt one platform. As such, most teachers use a collection of different types of technologies. May personally prefers to explore new technologies, such as Zoom, Tencent Classroom, Bilibili Live, and QQ Live, all of which she has tried.

For group lectures, May relies on Zoom and regards it as essential to conduct group activities. Although the school imposes no mandatory rules on teachers, it does require each teacher to submit teaching approaches and identify alternative ways. By understanding how teachers deliver their classes, including records of classroom assignments distributed and collected, the school ensures that teachers can complete their teaching tasks. When it comes to the final examination, she uses a unified platform, such as pigai.org for her Academic Communication Writing course.

Many teachers use iClass specifically designed with functions such as transferring

courseware, discussions/questions forums. According to May, virtually all her colleagues used the iClass platform during the epidemic. Unfortunately, in case of extra-large courseware, some course videos (especially those exceeding several hundred megabytes) are quite slow to upload. The convenience of iClass lies in the capability to import students' data directly for teachers to view. Further, students can access all courses through the platform.

Organizing the background data on iClass can be laborious. It diminishes time spent interacting with students. Because of difficulties such as this, the school also encourages the use of a new teaching platform known as Rain Classroom. This platform allows teachers to more easily sort and organize data. According to May, the majority of teachers at her university use Rain Classroom and regard the functions of Rain Classroom as more aligned with the actual needs of the school.

Research Question #2 How do the Participants Describe the Role and Impact of Computer-Based Technology in Teaching EFL Pedagogy? The analysis of the data revealed two general themes associated with the role and impact of computer-based technology in the estimation of May.

Emergent Theme: Generally, Students Prefer Some Type of Computer-Based Technology. Observations of May's class revealed that students prefer some type of computer-based technology that allows for a more free and unfettered way of learning. The wide application of mobile communication and network technology in people's daily life has greatly impacted the educational expectations of May's students. In this context, the English learning styles of college students have become more distinctive.

May believed each student has different needs, different evaluations and expectations of her as a teacher. She offered one example of a student who told her, "You know, teacher, now

everyone is doing live broadcasting on Bilibili, you should go and try." She tried it and received a great response from her students. They were much more active in sending the bulletin comments than they did in Rain Classroom. In her opinion, students' attitudes towards the platform are transferred to the class, which is a bonus. However, this greater emotional impact does not necessarily lead to positive learning effects. She related that (and confirmed during the class observation) students sometimes will merely chitchat through the bulletin comments.

Many students dislike Ding Ding for its rigorous monitoring and reporting of each student' s activity. May personally prefers to achieve group class meetings with Zoom. For example, in her listening and speaking class, students perform several different tasks, including debates and presentations on traditional Chinese customs. There are many groups and each one is assigned a unified virtual avatar. With Zoom, students can present the collected information and record them in their respective "rooms".

For the reading and writing class of General English, May prefers Rain Classroom. Since this involves a group lecture and covers more sophisticated grammar, there is a certain level of difficulty involved. Therefore, she requires students to provide timely feedback. As such, the bulletin screen offered in the Rain class is effective and convenient.

Reflecting on the learning dynamics of her students, May concludes that different teaching tasks frequently require differing computer-based technology. She believes the present teaching platform required by the school is unsuitable for the distribution of group information; however, it is very convenient for group display. Further, May considers Rain Classroom platform as inappropriate for the distribution of group information, nor is it convenient for group presentations.

For those students who are highly self-disciplined and prefer autonomous learning, auxiliary platforms such as iClass or Rain Classroom represent good learning choices. May believes the impact these teaching platforms have vary from person to person. Ultimately Some students like these platforms and such computer-based technologies have positive impacts; whereas other students do not like them and the impact of these platforms is minimal at best. All things considered, in May's experience the impact of computer-based technology varies according to the student's personal preference and learning style. Nevertheless, in her estimation most student prefer and expect teachers use some type of computer-based technology.

Emergent Theme: Computer-Based Technology Offers Unique Advantages Over Traditional Teaching Methods. From her experience, May believes computer-assisted instruction allow students to display greater initiative and independence. Students have the opportunity to independently master difficult material. The study time is not limited by forty-five minutes of classroom teaching. This allows the student's personal initiative to be brought into full play and develop. Students who possess an advanced understanding of material can develop a thorough comprehension at their own pace which may be more quickly than their peers. Conversely, students with less mastery of the material can practice repeatedly with the help of such platforms as Rain Classroom to improve their knowledge without any discrimination from iClass computers.

In addition, computer-assisted instruction can assist in overcoming the disadvantages of traditional teaching. Specifically, May related that use of some sort of computer-based technology encourages greater innovation and creativity in instruction. This can make the teaching content more vivid and moves from centralized teaching to individual teaching with the added advantage of offering flexibility and convenience.

Research Question #3 What Potential Benefits in Using Computer-Based Instructional Technologies in EFL do the Participants Identity? May was very clear that the use of computer-based technologies provides tremendous benefits. One important theme emerged from the data on this particular research question.

Emergent Theme: The Inclusion of Computer-Based Technology is Effective for Enhancing Instruction. May related that the use of various computer-based technologies have assisted to enhanced her instruction. To support that assertion, she offered a number of specific examples. In May's opinion, her students' pronunciation of English is not very standard. To help develop greater proficiency she has begun recommending the use of language acquisition software. In addition, numerous students display poor listening skills and have difficulty achieving her expected results. She has discovered that the use of language software has also proved to be helpful in improving their listening skills.

May also encourages students to set their mobile phones to all-English mode, which is good for visual benefits. May further related that VOA (Voice of America) Special English is very good and practical and helps students to improve the knowledge of spoken English and English grammar.

An interesting approach May recommends is dubbing software for students interested in dubbing of film excerpts. This too assists students who have poor pronunciation. Some students desire to read foreign language journals. For them, May recommends reading software. Moreover, she also enjoys Xunfei English which features sentence follow-up reading and offers intuitively good practice. It is also a learning community which allows the teacher to create a class group.

For vocabulary learning, the Bai Ci Zhan app is adequate. Interestingly, May recommends the Webster's Dictionary app to students because it is the least "technical" and thus, readily accessible. In her experience, many of the applets are well-advertised and offer lots of fancy features, but the English-English dictionary still gets used most frequently by students.

May believes computer-based technologies are necessary to improve the quality of teaching and provided several examples. The first is situational teaching where the teacher depicts a scene, creates vivid PPT slides, and uses the artistic appeal of music to supplement the scene in order to provide a more vibrant presentation. May uses an Apple computer which allows her to use a mobile phone to control the screen. This eliminates the necessity of standing in one spot at all times, and it allows for easy interaction with the students. The second point is the participatory teaching method essentially an interactive teaching application that enables students to learn and remember through an interactive process. The third is a discussion-based teaching method. Students are encouraged to consider their comprehension of grammar through consultations with teachers akin to brainstorming. May believes the Mini Program in Rain Classroom is very conducive to the improvement of teaching quality. She has developed appreciation for Rain Classroom's Mini Program. The application of Rain classroom improves students' autonomous learning abilities and innovative consciousness, and the application of intelligent teaching tools that assist to cultivate team spirit among students.

May also appreciates the tutor's functions in Rain, such as classroom check-in largely because ensuring the attendance of students is laborious for her. This check-in function enables a convenient way to check attendance.

There are disadvantages in Rain Classroom, however. For example, when a student is late or when a student sends a bullet screen saying that he/she does not understand a point, the

teacher has to repeat it. This cycle is very time-consuming. Therefore, if the teacher uses Rain Classroom, the progress of the course can be very slow.

In addition to in Rain classroom, May uses some auxiliary teaching classroom methods outside the classroom. For example, extracurricular homework is often assigned in a QQ group or We-chat group. Students must clock-in to be managed which encourages them to increase their self-discipline. This plays a role in mutual supervision and mutual promotion.

The university MOOC allows students to learn alone in their own time through discourse courseware, as well as video communication. These functions help expedite students in previewing before class. This is very suitable for students who enjoy self- study. There is learning data feedback on the MOOC course platform; therefore, the teacher can see the feedback data in the background to understand the students' learning situation.

Research Question #4 What Challenges and/or Barriers to the Effective Use of Computer-Based Instructional Technologies in EFL do the Participants Identify? While May display enthusiasm on the potential benefits of computer-based technologies, she also recognized the difficulties such technologies present. The analysis of the data revealed two themes connected to the challenges in employing computer-based technologies in May's experience.

Emergent Theme: Embarrassment When Mishaps Occur with Computer-Based Technology. May has attempted to use auxiliary education platforms, such as iClass, to assist with her instruction. However, these outside computer-based technologies can present problems. For May, it is important to be seen as a competent and effective instructor. She, regards that it is a reflection on her when things go wrong and she is unable to correct the problem. For example, she once used her phone's VPN to connect to the iClass platform. She was suddenly

disconnected and the classroom atmosphere froze. She tried to connect again, but could not. As the students looked up at her she felt very embarrassed. To avoid such embarrassment, May has altered her use with computer-based technology. She now prefers to use a cloud disk or network hard disk to send electronic materials to students.

Although iClass offers many advantages, in May's experience, the speed of uploading materials on the app is very slow. Another reason why she decided to change some of her procedures. May still uses iClass on occasion, but such unfortunate incidents as the one that caused embarrassment is avoided by teaching students to use digital platforms to assist classroom teaching.

Emergent Theme: There are Inherent Problems with Computer-Based Technologies. For May it is unavoidable that technical problems or other difficulties will arise when using computer-based technologies. May believes that most of the problems relate to the overly technical and mechanical application of computer-assisted instruction. Further, awaiting updates or navigating patches to existing computer software can be cumbersome and even difficult. Frequently, these technical problems impede the learning process and can be sources of frustration for her and her students.

May believes her knowledge of the utilization of the computer-assisted teaching programs is limited; therefore, she regularly makes errors. The platforms themselves are not inappropriate, but their effective use depends on the knowledge on to how to use them. May also related that the computer-assisted teaching platforms used in her school need to be regularly upgraded. While the materials can be easily uploaded, the progress of the class will be affected should the software platform stutter.

May identified another lesser recognized barrier to effective teaching with computer-based technology. She related that frequently teachers can become too reliant on various technologies that offer attractive appearing features and can become complacent in their own responsibilities to teach effectively. Specifically, teachers may teach mechanically in accordance with the courseware, resulting in passivity between teachers and students.

May also recognized that there are built-in challenges resulting from the abilities and/or reluctance of students to use computer-based technologies, most notably the auxiliary educational platforms used at her school. Some students display a reluctance to use these platforms and find them too stressful. Further, some students have discovered ways to manipulate the systems. For instance, some students will check into Rain Classroom but will not stay for the duration of the class. Also, commonly students will take advantage of the private chat function and spend the class chatting with friends rather than paying attention to the material or the teacher.

Participant Two: June

June is a mentor who graduated from Beijing Normal University in 2005. She primarily teaches writing and intensive reading for non-English majors in the Collage of Humanities. An experienced educator, June has served for 16 years in higher education.

Research Question #1 What Types of Computer-Based Technology do the Participants Report Using in Their Classes? Like May, June also reported using a variety of computer-based technologies in her teaching practice. Indeed, for June the accessibility and pervasiveness of the computer-based technologies available at her school is one of its most obvious strengths. This recognition of the vast resources available to her clearly came through during the personal interview with June.

Emergent Theme: The Wide Availability of Computer-Based Technologies.

For good reason June related, “An appropriate teaching environment would be congenial, and one that instills self-confidence in my teaching abilities.” The school is equipped with an abundance of technical equipment to enhance the quality of English teaching. June proudly pointed out the school possesses many multimedia classrooms, as well as a famous language lab that belongs to the national laboratory, and a virtual simulation laboratory for teaching English.

The open and networked virtual experiment teaching system is the digitization and virtualization of various teaching laboratories, which is composed of a virtual laboratory bench, a virtual equipment library, and an open laboratory management system. The virtual laboratory provides an innovative teaching environment for practicing virtual experiment courses. It allows students to operate on a virtual experimental table and independently design experiments.

The virtual laboratory is beneficial to the cultivation of operation ability, analysis, diagnosis, design ability, and innovative consciousness by allowing students to attain relevant knowledge, scientific guidance, and agile feedback more easily than in a traditional laboratory environment. The virtual reality laboratory is an important carrier for the application and research of virtual reality technology. Students can converse orally in the virtual simulation laboratory which is primarily employed in audio- visual classes.

There are numerous online tasks in this lab course, such as following reading and dubbing short plays. Students can also evaluate their own progress and that of each other. Teaching equipment is very convenient, and homework collection, task distribution settings, random groupings, online translation, other functions are very effective. Teaching is convenient for students to go to a large number of autonomous learning.

In particular, June often utilizes iClass. This app is particularly helpful in uploading learning materials and sharing videos. For daily communication, however, June prefers QQ and WeChat. She uses QQ and WeChat to primarily publish assignments. For writing, she uses the Pigai.org and the iWrite app.

June regards the application of computer-based technology in English writing as less tiresome for students and enhances their interest in learning English. Moreover, the application of computer-based technology, such as the Pigai org. and iWrite provides immediate feedback to the students' compositions, supplies exact scores, and highlights the mistakes in the students' compositions. After many revisions and submissions, a student's works will improve as will their grade. Further, the system provides general comments according to the students' writing situation which will not only highlight the students' strengths, but also offer corresponding suggestions to problems in the composition. Therefore, students learn from the suggestions on how to improve their work.

For June, the functional experience of computer-based technology is swift, convenient, and efficient. Thus, she employs a variety of technologies. For instance, June uses advanced computer technology with the English language such as Bi Si listening and VOA Special English to help improve English listening ability.

For those readers who only possess the skills of visual vocabulary, Junes seeks out technology that automates the pronunciations and equivalent patterns of English. This expedites the recognition of unfamiliar words and helps develop a rapid recognition vocabulary. She related that her goal is to integrate various teaching software in order to communicate with her students by creating an engrossing teaching environment.

Research Question #2 How do the Participants Describe the Role and Impact of Computer-Based Technology in Teaching EFL Pedagogy? The analysis of the data revealed one general theme associated with the role and impact of computer-based technology in June's teaching practice.

Emergent Theme: Computed-Based Technologies Have a Great Impact on Students. June considers the computer-based technologies, especially online classrooms, as highly conducive of enhanced learning opportunities for students. June related that some students do not like learning in class. However, the development of intelligent teaching methods, such as those frequently featured in computer-based technologies, stimulates the students' interest in learning.

Nevertheless, she does warn that some computer-based technologies can also encourage laziness in students. June recounted how a student did not come to class on one occasion. She asked the students how to say "absence" in English. They resorted to using their mobile phone to find the answer rather than utilizing their firsthand knowledge.

Yet, June remains optimistic on the potential for computer-based technologies to make a positive impact. For her, the initiation of online classroom learning, in particular, is undoubtedly an advantage for college students who possess strong self-discipline. The online classroom learning of college students has changed the interactive teaching method between teachers and students. Students in online classes can adjust their learning progress according to their own situation. In addition, students can break the limitations of time and space, find resources independently, freely choose the courses they are interested in, maximize the sharing of knowledge resources, promote the fairness of education, and improve teaching quality. June related that in her view hastening the progression from standard education to self-education and

life-long education is propitious to the advancement of a civilization that incentivizes unlimited and unbounded access to education.

For both teachers and students, the online classroom environment enhances the overall quality of processing information. It allows teachers to continuously enhance their online teaching abilities and alter the traditional mode of imparting knowledge.

However, June believes that online learning can weaken the teacher's ability to supervise students who have low self-control who are easily affected by the surrounding environment. Long-term use of electronic equipment can result in visual fatigue or myopia; therefore, learning efficiency is affected. Simultaneously, after years of examination-oriented education, numerous college students may think that teachers are the leading figures and their views are authoritative. They rely on teachers to arrange learning tasks and learning contents.

June personally considers that computer-based technology is a carrier or a tool. In fact, she thinks it is the teacher who ultimately plays a decisive role in learning. The content and expertise, and teaching method of the teacher will always be the most important factor in education. She warns that people have a tendency to overemphasize the importance of computer-based technology in education. To her, the central and most critical factor in effective education will always be the teacher.

Research Question #3 What Potential Benefits in Using Computer-Based Instructional Technologies in EFL do the Participants Identity? June reported some optimism for the potential benefits derived from computer-based instructional technologies. Her optimism was rather limited to the field of writing. Specifically, while she regarded computer-based technologies as helping in improving writing skills, she concentrated on how such

technologies can ease the cumbersome task of evaluating and correcting compositions. Only one theme emerged from the data directly connected to research question three.

Emergent Theme: Computer-Based Technologies can Facilitate Writing Instruction. June regards the necessity to improve the students' writing ability as imperative. The correction of compositions is an important part of teaching English writing in college. However, the correction of compositions has always been time-consuming and, in her estimation, frequently inefficient.

Digital writing platforms have brought much needed innovation to teaching English writing at college. Sites such as Figment offer greater resources to writing teachers and assist students in improving their writing skills. For June, is it especially important that any platform she uses aid in evaluating students' compositions. Figment is an online community dedicated to reading and writing stories online and is tailored especially for young readers and writers. Users can get be entertained by judging a story, whether it makes them laugh, cry, or just say "wow." The site often hosts competitions and features work by inviting well-known writers and editors who occasionally chat in the site's virtual community.

According to June, there are several advantages about the use of such digital writing platforms. First, the composition is uploaded on the platform, and because the evaluation is done automatically, it is more convenient for teachers. Thus, these platforms are equivalent to a resource collection and evaluation tool. Second, since correcting compositions is very time-consuming, it can take the student a long time to receive a grade. By having a central resource available to both teacher and students, the platform will actually evaluate and score a composition which is immediately made available to the student. Third, there are many composition topics already on some platforms (along with practice questions). Teachers only

need to choose from these preestablished topics and there is no need to think about what questions to give students. The convenience to writing teachers is tremendous.

Another advantage is that compositions can also be submitted repeatedly in some platforms such as Pigai org. There are differing levels of feedback details offered by the various platforms, but June makes it a practice to supply individual comments on the compositions.

Research Question #4 What Challenges and/or Barriers to the Effective Use of Computer-Based Instructional Technologies in EFL do the Participants Identify? Despite her optimism on some of the advantages of computer-based technologies, June had a lot more to say about the challenges she faces. Three themes associated with the challenges and/or barriers to the effective use of computer-based instructional technologies emerged from the data analysis.

Emergent Theme: Challenges Associated with Students. June pointed out an obvious fact, some students simply do not like computed-based instructional methods and prefer more traditional modes of teaching and learning. Some students may not have had much experience or exposure to the technology associated with computer-based instruction and find it unfamiliar or even intimidating. This is especially the case for distance online learning where personal support may be more restricted. Some students lack the necessary knowledge and understanding to effectively use computer-based technology which places them in at a disadvantage relative to their more cyber savvy peers. For example, some students come from, or currently live in remote, mountainous areas and have poor internet connections. Thus, online classes may be a challenge for them. Students may also be affected by the environment. For example, if the family relationship is difficult, such circumstances will have an impact on their disposition to learning at home. Moreover, some students may regard online teaching as beneficial but still desire the social connections that come with physically being at school. For these students, because they

can have face-to-face communication with teachers and classmates, they consider the learning environment as superior to online learning.

Emergent Theme: Proficiency Limitations Pose a Barrier to More Effective Use of Computer-Based Instructional Technologies. June is not satisfied with her present teaching methods. She related that she was not proficient in the use of many computer-based platforms available to teacher. Therefore, she uses her spare time to exercise and improve her skills. She has even suggested that the school coordinate training for teachers to develop skills needed to effectively use computer-based instructional options.

June describes herself as a person with relatively average technical literacy and slower to master new technologies. For example, when doing PowerPoint, she often is not able to fully use all of the functions. When participating in teaching competitions, she frequently must ask colleagues and friends for advice on how to use and integrate slides into the presentation. The Academic Affairs Office along with the school's trade union organizes an annual teaching competition as a means to promote professional development. The competition is designed to vigorously involve teachers in curriculum reform, actively explore effective teaching methods, and improve professional ability. Further, June related that she does not particularly like teaching with technology. She focuses more on the design of teaching activities and cares deeply about the choice of teaching content. As a result, compared to her peers, she is relatively less dependent on technology.

June noted that technology definitely has had a major impact on teaching. The teacher must learn to use technology, but it is a learning process that takes time. She mentioned an article and she particularly found interesting and she agrees with its premise. The point of the article indicates that the application of technology does not liberate human beings but actually makes

people more tired and often overloaded with work. For example, in the past teachers used notebook, pens, and books to give lectures. Now they have to prepare many complex elements and features, all of which are quite time-consuming. Although technology has played a role, she questions its full impact.

Emergent Theme: The COVID-19 Pandemic has Created Many Challenges. The COVID-19 pandemic has a great impact on June's teaching methods. At first, she was forced to accept new teaching technology and the pandemic has changed her from being passive on most computer-based technologies to being active in adopting those methods. This was especially the case for engaging in online instruction. June rejected do use it at the very beginning, but a while after she found that online resources and methods have some benefit. The result is that she is now more comfortable with online instruction and continue to engage with the technology. For instance, now that the students are back in school, June continues to use QQ or WeChat to discuss questions with students. In a significant change in attitude, June now believes QQ or Wechat are more effective in generating classroom discussion than in-class discussions.

Of particular importance to June was he issue of exams during the COVID-19 pandemic. Due to pandemic restrictions, all examinations were conducted online. For example, the school's postgraduate re-examinations are very stringent and required several cameras to monitor online test-taking. June believed the cameras were helpful but hardly foolproof. If some candidates insist on cheating, there are still ways they could do so.

Moreover, online exams have some notable drawbacks. For example, during the postgraduate re-examination when the teacher reads a sentence and then asks the student to translate it, the student may not be able to hear clearly due to technical issues or because of faulty internet connections. Such issues obviously affect the answer. June participated in the

retest process and came to see how the online exams might create unfair circumstances. Some candidates may receive a relatively simple question and quickly grasp the important information while the teacher was reading it. However, if a student got a difficult question, the individual needed to be very careful and pay special attention while listening. If there is a little noise or interruption, the result will be negatively affected. Thus, the specific environmental and technical situation could have a great impact on the results of the examinations.

Participant Three: July

July graduated in 1999 and subsequently attended graduate school completing her studies in 2002. She has been teaching for 18 years. July currently teaches in The New Progressive College English program, which is divided into two types of courses: intensive reading and listening and speaking. However, comprehension in listening, speaking, reading and writing are all emphasized throughout the program.

July primarily teaches English for freshmen and sophomores. She also establishes elective courses according to student interests. July's instructional focus is on teaching workplace English and business English for sophomores. After completing basic courses, students then look for their own research direction according to their needs and interests.

Research Question #1 What Types of Computer-Based Technology do the Participants Report Using in Their Classes? July discussed at length the types of computer-based technology common at her school. She regards these technologies as offering both advantages and disadvantages. The analysis of the data revealed one theme related to research question one.

Emergent theme: The School Encourages the use of an Auxiliary Educational Platform. Like the other participants, July is encouraged to use the Rain Classroom auxiliary

educational platform. She regards this platform has having both advantages and disadvantages. She especially appreciates the ease of supervision offered by Rain Classroom. For instance, when instructing students, the teacher can simply select the preview courseware with MOOC video, exercises, and audio and sent them directly to students' mobile phones all through the Rain Classroom app. Background monitoring allows the teacher to see each student's preview of the materials, whether there is any omission in the required materials. Therefore, students can be supervised to prevent them from slacking off or cutting corners.

Rain Classroom also has the advantage of repetition. Rain Classroom employs PowerPoint and WeChat to play back instructional content, thereby strengthening the major content of the material. This is helpful in improving autonomous learning ability and, in July's estimation, extends the classroom in time and space.

In July's opinion the disadvantages of Rain Classroom relate to its overuse and an overreliance among some instructors. Using Rain Classroom students can enroll in a class, take course quizzes, and initiate interaction with the teacher. This convenience makes some teachers complacent and too reliant on the platform. In July's view, some come to regard Rain Classroom as a replacement for more traditional instructional methods because they now merely upload all course materials and allow students to proceed on their own. This is inappropriate, in July's opinion.

Research Question #2 How do the Participants Describe the Role and Impact of Computer-Based Technology in Teaching EFL Pedagogy? The analysis of the data revealed two general themes associated with the role and impact of computer-based technology in the teaching practice of July.

Emergent Theme: Students Need to Adapt to a Variety of Instructional Modalities.

Whether they are comfortable or uncomfortable, familiar or unfamiliar, or like or dislike computer-based technologies, July pointed out students must adapt to a range of instructional platforms and methods. She connected students' disposition toward instructional platforms with their prior educational experiences. Some students are able to learn new learning methods quickly, but some students are afraid to try new things simply because they have always been exposed to more traditional ways of teaching and learning. Further, many students started learning English when they were young, perhaps as early as kindergarten, and continued with another 12 years of middle school and high school. Thus, prior educational experiences play a significant part in how students regard the computer-based technologies they are exposed to in college. Whatever the prior experience, however, all students are impacted in one way or another by the instructional methods common to the university.

In July's estimation the most positive impact is that computer-based technologies promote student learning. Combining various apps and auxiliary teaching platforms place students in situations where they must access the necessary resources for their learning. The more they learn how to maneuver through these various processes, the greater the learning that will be achieved. She also asserts that, generally, students' enthusiasm for learning is enhanced because they have access to a wider pool of resources and not limited to one or several textbooks. But even so, July is cautious. She points out that traditional teaching methods must not be completely lost. These methods remain foundational to effective learning. Computer-based technology with their associated auxiliary platforms are just that auxiliary.

There is good reason for July's caution. She also related that some students believe the interaction in auxiliary platforms is inferior to face-to-face interaction because they feel like they

are talking to the machine rather than a real person. For example, in some classes, students listen to Rain Classroom course content on their mobile phones using headphones. Such classes are silent and they are tedious. Many students report they feel sleepy when they listen to lectures with headphones for a prolonged period. Moreover, classroom monitoring is prone to loopholes. Rain Classroom requires mobile phones. Therefore, WeChat, and QQ messages will sometimes pop up distracting students and some students may even play with their mobile phones. Nevertheless, whether positive or negative, students have been greatly impacted by the use of computer-based technologies in their classes.

Emergent Theme: Need to Adopt New Teaching Methods. According to July, the English teachers trained in traditional pedagogical methods are still hampered by those shortcomings. For her, the traditional method of teaching can result in an uninspired classroom atmosphere. This can be attributed to the personality characteristics of teachers and the expectations of students. Moreover, many English teachers complain that the requirements of new textbooks are too high. Comprehending the basic knowledge of subjects such as physics, chemistry, biology, history, and geography presented in most textbooks is difficult. July related, "Therefore, challenges exist, and I should also learn to develop my skills in the teaching process to bring a new look to my students."

Traditional teaching is completely face-to-face. As such, communication is largely limited to classroom interaction. With the auxiliary platforms such as iClass and, more specifically, Rain Classroom, teachers and students have greater opportunity for communication. July continues to develop and use new teaching models because she believes a single teaching model will be boring and, thus, ineffective. She has created a WeChat group for her students in which she transmits learning materials through this platform. By so doing, students receive the

latest course content which is very convenient and quick. In addition, she also takes time to go to the WeChat group every week to ask students about their recent learning situation and receive feedback on their learning status.

July found that she wants to keep pace with the times. However, she also indicated that she wants to learn even more teaching skills and methods. For example, some notifications are passed through WeChat. She regards WeChat group is the best way to connect to students. It is very fast, regardless of private chat or group chat. For July, this development is one of the most noticeable impacts of computer-based technologies.

Further, the various auxiliary platforms now allow July to use different forums according to students' needs. For example, for students whose basic English scores are poor and who do not have command of a broad range of vocabulary, she recommends they use apps such as Chopping Words, Scallops, Shanbei, and Baicizhan.

July also pointed out the importance and impact of computer-based technologies for students taking CET exams. Chinese undergraduate students must take CET exams. For students who have completed college English courses Band 1 to 4 typically take the CET-4. Students who have completed English courses Band 5 to 6 and have successfully passed the CET-4 exam, take the CET-6. July related that she once read an article on why students have poor listening and speaking skills. Namely, these poor outcomes were connected to the types of teaching tasks that focus on literacy training. But this is poor preparation for the CET-4 and CET-6 exams that focus on written exams. On the current CET-4 and CET-6 exams, 15% of the assessment requires writing and another 15% requires translation. Previous versions of the exams consisted of 15% writing without translation. The many types of computer-based technologies now allow teachers to more completely address gaps in instruction and learning. The goal is to better prepare

students to successfully pass required exams.

For July, this is a significant impact of computer-based technologies. For example, the Micro-Class platform allows students to practice spoken English. The platform's check-in feature requires students to finish all listening and practicing in order to show 100% completion. Students must demonstrate 100% completion in order to move along on the platform and points earned along the way are counted into the student's grades. The result is that students are highly encouraged and motivated to listen and speak in order to complete assignments. Moreover, the method of assessing students' performance is based on students' intensive reading, listening and speaking scores, mid-term and final exam scores, and a spoken test score. Finally, students must pass a comprehensive evaluation. July hopes this comprehensive evaluation method can influence most students to attach importance to listening and speaking skills that will better position them to pass all required CET exams.

There is also a platform called e-learn for students' spoken proficiency. This platform allows students to record an oral task and the teacher listens to the recording and then offers guidance. In traditional teaching, it is difficult for everyone to practice speaking and receive prompt reaction. Typically, a class lasts 45 minutes and includes 30 students. July uses the recording method offered by e-learn to facilitate both individual and group activity.

Research Question #3 What Potential Benefits in Using Computer-Based Instructional Technologies in EFL do the Participants Identity? July linked the potential benefits of computer-based instructional technologies to the resources offered by her institution. Thus, one theme emerged from the data on this particular research question.

Emergent Theme: The Computer-Based Technology Resources are Rich and Accessible. July said, "My comprehension of the teaching system of our institution is it

prioritizes computer-aided teaching equipment." There is an abundance of multimedia projection equipment in the classroom, a special language lab, and a variety of auxiliary instructional platforms available to teachers. The school is also rich in other teaching resources including intelligent classrooms specially designed for teachers, as well as multimedia classrooms, language labs.

However, one of the most prominent features of the resources available to teachers is the school's emphasis on iClass and Rain Classroom, mainly because they offer many interactive functions for teachers and students. This emphasis reflects the school's paramount importance on continual communication between teachers and students.

Moreover, the school's network of resources is intentionally designed to make learning convenient for students. July related that an item in their teacher assessment asks: "Do you use iClass?" There are no requirements for using either iClass or Rain Classroom, but there is a pervasive expectation that teachers use one or both of these platforms. The disadvantage of iClass is that it must use the school network VPN. The convenience of Rain Classroom is that it does not require plug-ins and can be directly linked to the WeChat account on mobile phones. As long as teacher/student log in to WeChat, they can go to Rain Classroom. In July's opinion, the school's attitude is very positive toward either of these platforms but especially encourages teachers and students to use iClass.

The school also encourages teachers try Rain Classroom. It is the Learning Mini Program launched by Tsinghua University. According to July, since 2016 most colleges and universities across the country have formed a cooperative with Tsinghua University. Her school possesses its own production of a micro-class platform, the Shanghai Foreign Language Teaching Material that teachers use in college English teaching along with an assistant platform app by Shanghai

International Studies University.

The school also recommends an online translation and writing platform called pigai.org. Moreover, Foreign Language Teaching and Research Press recommends the iWrite platform. These two platforms are based on a large number of corpus analysis to understand the students' problems with compositions. Although sometimes the accuracy rate is not as good as compositions correct by a human, the accuracy and efficiency of the machine is still relatively impressive. July related that she often uses these two platforms together, while some of her colleagues use pigai.org more often.

Research Question #4 What Challenges and/or Barriers to the Effective Use of Computer-Based Instructional Technologies in EFL do the Participants Identify? Similar to the other participants, July also identified challenges when employing computer-based instructional technologies. Two themes emerged from the analysis of the data.

Emergent Theme: Effort to Adjust to New Instructional Methods and their Technical Difficulties. July reflected on the changes in teaching she has witnessed over her 18-year career. She related how that traditional teaching essentially meant that teachers attempted to instill knowledge into students through lectures and textbooks. Today, instruction involves so much more than this. With a wide array of resources available to students, teachers are no longer the only source of information. This has required teachers, like herself, to adjust to new instructional methods and cope with the technical problems that may result.

For July, the situation can almost be a bit overwhelming. She related that there almost too many resources on the Internet. It is not easy to find the resources needed. July said, "Sometimes it's like looking for a needle in a haystack, it is a challenge for me." It takes time to check and review resources with complex content, such as video editing.

It is also a technical challenge for her. She related, “If you have the resources, you must choose the right platform.” Such as Ding Talk, Tencent Meeting, Tencent Courses, there are also online classes, like Rain Classroom. Unfortunately, the Rain Classroom live broadcast is especially unstable.

July also noted that some teachers teach foreign languages on TikTok. The click-through rate is quite high, but July hardly uses TikTok. According to July, TikTok is not a very serious platform for academic teaching. There are too many unrelated videos that distract students from the intended academic material. Actually, this is not only the case for students but herself too. July also found herself distracted when attempting to use TikTok.

Emerging Theme: Challenges Arising from the COVID-19 Pandemic. During the 2020 winter break, all students went home on vacation. During that time, the COVID-19 epidemic broke out. No student was not allowed to return to Beijing. As a result, all instruction was required to be delivered online while students remained at home. The pandemic not only affected course instruction, but all exams also had to be delivered online. Everyone, including July, were suddenly forced to respond to the new challenges resulting from the pandemic.

The pressure was very high. Everyone was coping with the sudden change in teaching methods. Foremost in virtually everyone mind was, which auxiliary platform is most suitable for my teaching needs? July was uncertain on what resources would be most suitable. She had never used most of the existing platforms before, even though the school had encouraged their use. Additionally, because of the pandemic, she needed to record her lectures, something July had never done before. Recording course lectures is a technical task that she found very stressful.

Further, she was concerned that there was little control over how students used their time devoted to their studies during the pandemic. Teachers didn’t know what students were doing

behind the monitor screen. Although the camera monitor students, she was unsure what the students were looking at simply because it was also possible that students were on their phones with their heads down. She also related that the quality of online homework was not very good during the pandemic

Psychological pressure and life changes were great. In the past, teachers/students could move between the school and home. During the pandemic such movement was impossible. Everyone was isolated at home. As a result, both instruction and learning were negatively impacted.

Participant Four: August

August has been teaching for 17 years. Her primary teaching responsibilities include intensive reading, listening, and speaking, Anglo-American culture, and science technology literature reading. The school offers professional English, graduate English, and college English style teaching. In addition, August's school offers courses in English language and culture, science and technology literature reading. The purpose of the science and technology literature reading course is to help postgraduates master the stylistic features of science and technology literature, construct the text framework of science and technology, form effective reading strategies, and cultivate a critical reading ability.

August has a heavy teaching load. Although there are few students in her school majoring in English, she teaches English to all undergraduate students. For her, the teacher-student ratio is about 1:35.

Research Question #1 What Types of Computer-Based Technology do the Participants Report Using in Their Classes? August enjoys working in an academic division rich in resources for its teachers. The data revealed one rather important them related to research

question one.

Emergent Theme: Academic Division Fully Supports Teachers with Numerous Resources. The academic division in which August teaches has a reputation for providing a superior and comfortable environment for teaching and scientific research. Among the resources available to its faculty are professors' laboratories, language laboratories, simultaneous interpretation room, multimedia language laboratory, digital language laboratory, multi-function audio-visual room, multimedia network classrooms, and electronic lesson preparation room.

For her instruction, August prefers to use iClass. She particularly appreciates that iClass provides after-class performance statistics, real-time interaction, permits flipping the classroom, and offers after-class review among its other functions.

August's academic division has built a platform called the University English Experimental Platform which is mainly used to train students in spoken English. Additionally, the iWrite platform developed by the Foreign Language Teaching and Research Press was free to use during the COVID-19 pandemic. However, in her division most of the faculty uses pigai.org. Many universities across the country are using this resource and the audience is relatively large. In fact, August has used it for many years.

Beyond these resources, August also set up a WeChat group to inform students or release learning materials. August also related that like the majority of her colleagues, she uses several platforms simultaneously. As shown in the following discussions, August makes tremendous use of iWrite for grading assistance.

Research Question #2 How do the Participants Describe the Role and Impact of Computer-Based Technology in Teaching EFL Pedagogy? The analysis of the data revealed

one theme associated with the role and impact of computer-based technology in the teaching practice of August.

Emergent Theme: Computer-Based Technologies Have Made Heavy Workloads More Manageable. Perhaps because August has such a heavy teaching load, she recognized the ways in which computer-based technologies help lighten the workload for teachers. August teaches more than 300 students in a semester. It is impossible for her to personally to correct all the writing assignments. Automated assistance is essential to her work. For that assistance, August uses the iWrite platform developed by Foreign Language Teaching and Research Press to make spelling and grammatical corrections. With the use of iWrite, August no longer needs to focus on vocabulary spelling or grammar; rather she evaluates logic and the depth and breadth of students' thinking. Based on the evaluation provided by iWrite, she takes one-third of the students in every class to correct by herself. However, if August knows the level of ability of a student and is doubtful about the grade provide by iWrite, she will take that student's assignment out for personal correction. While August regards correction by a real person as more accurate than an automated resource, the workload makes it necessary to use devices such as iWrite.

Platforms like iWrite include a number of parameters, so a score on any composition is relatively rigid. For example, if the iWrite parameters determine that a word is more formal, comes from Latin, or is more academic, the program will likely give a higher score. August once had a student who felt that the machine could be easily manipulated. He wrote 128 times in order to verify an article in an effort to confirming that machine translation is not really objective. He changed two words and the scores differed by more than 5 points (out of 100 point possible).

While resources such as iWrite contain flaws, nevertheless, they offer much needed assistance to teachers who carry heavy teaching loads. August was quick to point the problems

inherent in iWrite, but contends her work would be virtually impossible without it.

Research Question #3 What Potential Benefits in Using Computer-Based Instructional Technologies in EFL do the Participants Identity? August regarded advances in computer-based instructional technologies as allowing greater flexibility for teachers. Because of the innovations over the past few decades, teachers have more options and opportunities in their instruction. One theme emerged from the analysis of the data directly associated with research question three.

Emergent Theme: Computer-Based Technologies Allow Greater Flexibility in Instruction. August believes the most effective educational approach is to combine different auxiliary platforms. For example, for instructional tasks, she prefers to use iClass. However, she relies heavily on iWrite for evaluation purposes. The ability to use multiple platforms provides the opportunity for August to take advantage of each of their respective strengths. In her experience, these resources have made her a more effective and efficient teacher to large numbers of students.

August also pointed out how important this advantage is to Chinese higher education. Chinese educators who teach English courses frequently must teach very large numbers of students. For example, in her intensive undergraduate courses, she routinely has an enrollment of 80 or more students. Similar courses in some institutions can easily enroll over 200 students. An example is lectures that prepare students for the Postgraduate Entrance Examinations. To August, the teacher-student ratio is simply not suitable for language teaching. Without the ability to merge various computer-based technologies, English language teachers would face a virtually impossible task.

August also mentioned a course she taught on British and American cultures. She related

how a good foundation for the application of the English language can be laid through the systematic training of listening, speaking, reading, and writing skills when culturally contextualized. The comparison between the East and the West can result in a certain degree of awareness and enhance cross-cultural communication proficiency. She used a variety of computer-based technologies to assist student to comprehend cultural meanings contained in reading and visual materials. The integration of cultural interpretation into discourse learning and the introduction of basic cultural knowledge helped to remove some of the obstacles to cross-cultural communication for students.

Research Question #4 What Challenges and/or Barriers to the Effective Use of Computer-Based Instructional Technologies in EFL do the Participants Identify? August believes that the advantages of computer-based technologies outweigh their disadvantages. For her the issue is not so much that computer-based technologies have shortcomings, but rather they need to be improved. One theme emerged from the data on research question four.

Emergent Theme: Computer-Based Technologies Need to be Improved to Achieve Greater Effectiveness and Alleviate Student Anxiety. To August, students generally are not interested in traditional teaching methods. These methods simply to not interest them. However, when instruction is varied and combined with computer-based technologies, students are more like to engage and be receptive to the material. This is especially the case for learning English. August noted that some students can read and write English but not speak it. Some students display "language anxiety" when learning English. The inability to express meaning accurately and effectively results in tension, fear, and an inability to successfully participate in classroom activities. Typically, traditional teaching methods are not well suited to alleviate student’s anxieties.

These kinds of difficulties gradually dampen students' enthusiasm and results in a loss of self-confidence, produces obvious psychological obstacles, can lead to humiliation, and ultimately the abandonment of the attempt to learn English. Therefore, helping students to reduce or even eliminate these obstacles should be an important objective for teachers of the English language.

Computer-based technologies are certainly better than traditional teaching methods in this regard, but there remain limitations in the existing resources. Many technologies are not especially intuitive and may be difficult to use or contain many technical bugs. These problems do nothing to lessen the stress and anxiety of students who are struggling to teach English. An obvious first-step is to improve existing technologies along with creating new more "user-friendly" resources.

Interestingly, this discussion led August away from a focus on computer-assisted technologies and toward how humans relate to one another when using these resources. She stressed that teachers should use encouraging language when guiding students. Teachers should be dedicated individuals who give students love, patience, and confidence and strengthen the students' abilities through observation and guidance while helping them with any learning difficulties they might have. Students who make little progress in speaking English should be given sincere encouragement to motivate them and give them the courage to actively engage the English language. For example, August often uses motivational phrases, such as "great," "excellent everybody," "quite well," "your pronunciation and intonation are perfect," "well done." Even when she corrects errors, she attempts to affirm what a student has done correctly. She believes that small mistakes, especially those caused by unskilled students, should not be corrected. Attention to too many minor details only serves to discourage students. A relaxed and

pleasant environment, a kind and amiable face, and a look of encouragement and expectation are all conducive to teaching the English language. For August, the best computer-based technologies are only as good as the goodness of the teacher.

She also related that students likely spend too much time online as a result of the current computer-based instructional methods. In an era of information explosion, how to filter useful information is a big problem. In fact, when August prepares for a lesson, she finds she must spend hours sifting through materials. It is likely students have the same experience because there is a greater emphasis on "self-study" that is directly associated with the growth in the popularity of computer-based instructional technologies.

Self-learning is essentially the ability to obtain information independently. But self-study is very problematic. Many students studying online demonstrate anxiety. She related that a number of her students complained of being depressed. In is not uncommon for them to spend 12 hours a day in online courses, mainly trying alone to understand the material, locate needed resources, and complete assignments. The long hours, wasted time, and emotional anxiety are ineffective, inefficient, and harmful. August related that online educators need to pay attention on how to help students relieve their inner anxiety and irritability given the demands of online learning.

CHAPTER 5: DISCUSSION

Introduction

This study examined the teaching experiences of four college English teachers from a university in Beijing, China. The purpose of the investigation was to gain insight into the current advantages, challenges, and opportunities associated with computer-based technologies. I hope the insights gained from this study will assist emerging teaching methods to help Chinese students improve their English language skills.

The Faculty of School of Humanities at the university that served as the setting for this study regard English as an important part of the curriculum. The school has three teaching and research sections. One section is mainly responsible English teaching and research for undergraduates. This section is responsible for the school's comprehensive English listening and intensive reading courses. The second is the postgraduate English teaching and research section. This section primarily deals with postgraduate English courses in various majors such as academic English and workplace English. The third section is the professional English teaching and research section and is responsible for teaching of English majors such as linguistics and English literature. Clearly, teaching of English is central to the mission of the university making research such as this study highly important.

This chapter reviews the emergent themes identified using a within case analysis of the data from each participant. Next, I present a cross-case analysis of the data considered from the total sample of participants. As part of this analysis, I integrate the emergent themes into a framework to answer the four research questions guiding this study. This analysis is followed by a discussion on the implications of this research for scholarship and educational practice. Finally, I present some suggestions for future research.

Within-Case Analysis Emergent Themes

The study explored four research questions. The results of this study reflect data from interviews and class observations with four Chinese teachers who use computer-based technology in teaching English. I engaged in a within case analysis in order to identify emergent themes for each of the four participants. That analysis revealed a total of 22 emergent themes (Table 2). I located these emergent themes as generally associated with each of the four research questions. However, I made no attempt to provide answers to those questions from the within-case analysis.

This within-case analysis documented the central place computer-based technologies play in the teaching methods of the participants. The participants described a wide range of different types of computer-based technologies they use, the process by which they came to use those technologies, and the opportunities and challenges they perceive. Working from the within-case analysis, I have conducted a cross-case analysis to identify the prevailing themes articulated by the participants. The cross-case analysis provides answers to the four research questions.

Cross-Case Analysis and Research Questions

The cross-case analysis involved considering each of the 22 emergent themes and examining for similarities in perceptions and experiences. This analysis did not require a perfect match in the experiences and views expressed by the participants. Rather, it is sufficient that the participants described experiences or perceptions close enough that they can be reasonable considered as consisting of a general common theme (Yin, 2017). Thus, the general theme must be comprehensive enough to capture the specific nuances of the similar emergent themes. For example, only one participant, May, described feeling embarrassed when she could not readily correct technical difficulties. However, this experience is close enough to experiences described

by other participants to be included in a general theme "Adjusting to New Instructional Methods and their Technical Difficulties."

Table 2. Within-Case Analysis Emergent Themes

	May	**June**	**July**	**August**
Research Question #1 What types of computer-based technology do the participants report using in their classes?	The School Encourages the Use of Auxiliary Educational Platforms	The Wide Availability of Computer-Based Technologies	The School Encourages the use of an Auxiliary Educational Platform	Academic Division Fully Supports Teachers with Numerous Resources
Research Question #2 How do the participants describe the role and impact of computer-based technology in teaching EFL pedagogy?	Generally, Students Prefer Some Type of Computer-Based Technology Computer-Based Technology Offers Unique Advantages Over Traditional Teaching Methods	Computer-Based Technologies Have a Great Impact on Students	Students Need to Adjust to a Variety of Instructional Modalities Need to Adopt New Teaching Methods	Computer-Based Technologies Have Made Heavy Workloads More Manageable
Research Question #3 What potential benefits in using computer-based instructional technologies in EFL do the participants identify?	The Inclusion of Computer-Based Technology is Effective for Enhancing Instruction	Computer-Based Technologies can Facilitate Writing Instruction	The Computer-Based Technology Resources and Rich and Accessible	Computer-Based Technologies Allow Greater Flexibility in Instruction
Research Question #4 What challenges and/or barriers to the effective use of computer-based instructional technologies in EFL instruction do the participants identify?	Embarrassment When Mishaps Occur with Computer-Based Technology There are Inherent Problems with Computer-Based Technologies	Challenges Associated with Students Proficiency Limitations Pose a Barrier to More Efficient Use of Computer-Based Instructional Technologies The COVID-19 Pandemic has Created Many Challenges	Adjusting to New Instructional Methods and their Technical Difficulties Challenges Arising from the COVID-19 Pandemic	Computer-Based Technologies Need to be Improved to Achieve Greater Effectiveness and Alleviate Student Anxiety

Using a cross-case analytical approach, I identified seven themes (Table 3). Two themes relate to research question one; two themes connect to research question two; only one theme is associated with research question three, and finally, two themes link to research question four.

Table 3. Cross-Case Analysis Themes

Research Question	Theme
Research Question #1 What types of computer-based technology do the participants report using in their classes?	Theme 1: The School Encourages the Use of Auxiliary Educational Platform Theme 2: The School Supports Teachers with Lots of Resources
Research Question #2 How do the participants describe the role and impact of computer-based technology in teaching EFL pedagogy?	Theme 3: Computer-Based Technologies have Impacted Student Learning Theme 4: Computer-Based Technologies have Impacted the Way Teachers Instruct
Research Question #3 What potential benefits in using computer-based instructional technologies in EFL do the participants identify?	Theme 5: Computer-Based Technology Enhance Teaching Effectiveness and Efficiency
Research Question #4 What challenges and/or barriers to the effective use of computer-based instructional technologies in EFL instruction do the participants identify?	Theme 6: Technical Difficulties Associated with Computer-Based Technologies are Challenging Theme 7: The COVID-19 Pandemic Forced More Rapid Adoption of Computer-Based Technologies

Research Question #1 What Types of Computer-Based Technology do the Participants Report Using in their Classes? This research question intended to establish how extensive (or not) the participants use computer-based technologies in their teaching. In many respects, the question was meant to establish a "baseline" of computer-based technology usage. Two themes assist to provide an answer to research question one.

Theme 1: The School Encourages the Use of Auxiliary Educational Platforms. While the school stops short of requiring the faculty to use computer-based technologies, it obviously places a great deal of emphasis on these technologies. That priority was clearly perceived by the participants. They indicated that the school strongly encourages them to adopt some sort of

computer-based technology, especially an auxiliary educational platform such as iClass or Rain classroom. In fact, all four participants reported using either iClass or Rain Classroom. Further, the participants also discussed how they integrate auxiliary educational platforms in creative ways with other computer-based technologies.

Theme 2: The School Supports Teachers with Lots of Resources. Not only does the school encourage teachers to adopt computer-based technologies, it provides ample resources to them. The range of these resource is impressive. From intelligent classrooms designed to accommodate computers, cameras, multimedia devices, and mobile apps, the participants described an array of resources the have access to in their teaching. Two of the participants in particular, June and August, went to great lengths to discuss the tremendous support they receive from the school.

Research Question #2 How do the Participants Describe the Role and Impact of Computer-Based Technology in Teaching EFL Pedagogy? This research question attempted to provide documentation on how the participants interpret the influence on computer-based technology on their teaching practice. The cross-case analysis revealed two themes that assist in understanding this research question.

Theme 3: Computer-Based Technologies have Impacted Student Learning. The participants personally witnessed the influence of computer-based technologies on their students. The impacts range from negative to positive. June and August both voiced concern on how greater reliance on computer-based technologies generate greater anxiety from some students. Even so, all the participants discussed the positive impact of computer-based technologies on students. Specifically, the related that the greater use of these technologies make learning more

interesting, opens up a greater array of resources, and invites more independence for self-study for their students.

Theme 4: Computer-Based Technologies have Impacted the Way Teachers Instruct. The participants had a great to say about how computer-based technologies have not only changed their own teaching practice but how teaching methods in general have been impacted. All the participants compared current teaching with computer-based technologies to traditional teaching. Moreover, they were in agreement that, despite some difficulties and challenges, current teaching methods that incorporate computer-based technologies are superior to former teaching practices that do not use computer-based technologies. All the participants agreed that new and emerging technologies are leading teachers to alter the way they instruct students. They generally also agreed this to be a positive development.

Research Question #3 What Potential Benefits in Using Computer-Based Instructional Technologies in EFL do the Participants Identify? The intent of this question was to discover the positive aspects of using computer-based technologies in their teaching practice. Likely because so much of their discussion that relates to this question was also connected to research question two on the impact of computer-based technologies, only one specific theme was identified in the cross-case analysis.

Theme 5: Computer-Based Technology Enhance Teaching Effectiveness and Efficiency. The participants recognized that teaching with computer-based technology requires that teachers work harder to identify appropriate resources and learn to use those resources appropriately. However, a theme that clearly appeared in the data was that there is a tremendous payoff for that hard work. Namely, computer-based technology is of critical assistance in achieving greater effectiveness and efficiency in teaching practice. Teaching the English

language is difficult and often tedious work. In particular, correcting compositions is time-consuming and laborious. Computer-based technology offering automated grading features for compositions are particularly highly regarded as beneficial. Indeed, May, June, and August made a point to emphasize how computer-based technologies offer greater capacity for them to be more effective and efficient in teaching.

Research Question #4 What Challenges and/or Barriers to the Effective use of Computer-Based Instructional Technologies in EFL Instruction do the Participants Identify? Similar to research question 3, this final research question attempt to document the difficulties the participants identify in using computer-based instructional technologies. Two themes provide insight on this theme.

Theme 6: Technical Difficulties Associated with Computer-Based Technologies are Challenging. The participants described being frustrated by the technical difficulties that invariably occur when using any technology. The types of problems they identified ranged from simple sputtering of internet connections, to breakdowns of equipment, to highly technical software glitches far beyond the skills of a most people to correct. All the participants described some difficulty resulting from using computer-based technology at some point in their teaching experience.

The source of the problems using computer-based technologies also varied. Three of the participants, May, June, and July described their own shortcomings and limitations of dealing with technical difficulties. June was particularly candid about her lack of proficiency in using computer-based technology and regarded it as a barrier.

Theme 7: The COVID-19 Pandemic Forced More Rapid Adoption of Computer-Based Technologies. During the course of the interviews, all the participants referenced the changed

forced by the COVID-19 pandemic. This is not surprising as one of the impacts of the pandemic was creating dramatic changes to education on a global scale. June and July had the most to say about the impact of the COVID-19 pandemic, but all of the participants referenced the sudden, abrupt changes that caused them to hurriedly adapt to the demands of teaching online and searching for the most appropriate platforms and resources for their courses. They experienced a great deal of stress because of the sudden changes they had to make with virtually no time to prepare. Three of the participants mentioned that the changes to teaching created by the pandemic would likely be permanent and could result in positive changes.

Implications for Scholarship

Computer-based technology can assist students to gain the ability to carry out effective learning activities in the acquisition of a language. Advances in computer networks have expanded computer-mediated communication, enabling students to be exposed a new language in ways that were never possible in previous years (Kern et al., 2008). Moreover, interaction is an essential requirement to acquire a new language. Most educational technology scholars believe that computer technology helps to create an environment that promotes student participation and creates a real environment for interaction and meaningful negotiation when learning English. The results of this research, at least in the estimation of the four participants, support this assertion. The participants focused on the way the various computer-assisted technologies that they and their colleagues use assist in just the way scholars suggest.

Computer-based technology makes it easy for EFL teachers to offer personalized instruction. Computer-based technologies have been used to provide standalone programming applications, such as tutorials, exercises, simulations, educational games, test exercises, and more. In the current context, Web-based language learning has also received great attention

(Abunowara, 2016). Web-based language learning refers to the use of interconnected computers on a network. The participants in this study described either employing these types of methods or recognizing the need to move in that direction.

Recent scholarship has focused on the value of using computer-mediated communication as a tool to facilitate language learning. For instance, Kalanzadeh et al. (2014) reported on the relationship between attention and text-based motivational discussion among students. It has also been demonstrated that computer-based technologies can facilitate dialogue and interaction for language learning. Kim and Rissel (2008) report that the educational process is greatly influenced by teachers' role in language teaching as well as the interaction between teacher and students in computer-based language teaching. The participants in this study recognized this dynamic too and worked to create positive learning experiences for their students when using computer-based technologies.

Implications for Educational Practice

There has been a major shift in the use of computer-based technology in EFL classroom settings. While students are responsible for their own learning, educators play an important role by guiding their educational process. The greater use of computer-based technologies has many potential benefits including greater independence among students. In such scenarios, where students play an important role in their own educational growth, students can develop a "learn-to-learn" approach that emphasizes specific abilities to face real-world learning situations. As a result, students must be prepared to use, expand and process information in a variety of environments that respond to their interests and needs. In this active knowledge-building process, students will need to be supported by computer skills which provide the opportunity to develop

the capacity to ask questions, rather than merely seeking answers. This helps stimulate exploration and discovery.

Students also become the organizers of their own courses, as they have to make more instructional decisions when using computer-based technology. Advances in computer-based technologies offer the potential to gain specific language skills. Combining more traditional teaching methods with computer-based technologies in particular improve the learning environment (Sadeghi & Dousti, 2014).

A promising development for education is the combination of several technical mediums to serve language teachers. The has led to the development of multimedia applications through computer programming. Current computer-based technologies combine all or some of these elements into a single application. Focusing on students' active participation not only increases their opportunities to build knowledge but also to reflect on their learning processes.

Suggestions for Future Research

This study examined four college EFL teachers in a university in Beijing, China. In future research, other EFL teachers from different universities and cities are recommended to be involved, which may help to delve deeper into the research questions. In addition, since the participants in this study were all female, the participation of male teachers and interns in language training institutions will improve the quality of future research. It would also be interesting to incorporate the opinions and experiences of supervisors into the study. Future research may consider integrating different perspectives and voices to explore how computer-based technology affects the outcomes and effectiveness of EFL education.

Teachers clearly play important role in effectively using computer-based technologies into their classes (Manfra & Hammond, 2008). Mishra and Koehler (2006) argue that if teachers

are to maximize the opportunities presented by computer-based technologies in English learning, teachers need proper professional development to become aware of the option available to them and the ways these resources may be used. According to Mishra and Koehler (2006), although students may have a preference for online learning or blended learning, such approaches can result in some negative outcomes. For example, students may miss educational opportunities, and even experience disengagement. The reasons include the shortage of time for preparation and insufficient technical infrastructure. Greater research is needed on the potential difficulties in using computer-assisted technology in language education in order to avoid some of these difficulties.

An important limitation to using the technology-supported English learning is simply the lack or absence of technical support. The participants in this study identified technical difficulties and their limitations in dealing with those problems as an important barrier in using computer-based technology. More research on how university provide technical support to teachers would be very helpful. The future researcher can make a more in-depth study of the relationship between teachers and students under the condition with computer-base technology aids.

Conclusion

Using a case study approach, this study has examined the situation, the benefits and challenges of computer-based technology in a university in Beijing of China. Computer-based technologies, if used appropriately, can provide EFL students with a highly stimulating educational environment and an enhanced learning experience. Computer-based technology allows learners to interact with various multimedia elements and actively participate in their learning process (Gilakjani, 2014).

In recent years, the application of multimedia in education has become more and more popular. The development of computer-based technology has redefined the roles of teachers and students, enhanced teacher training in computer-assisted education, and promoted analysis of the advantages and limitations of using new technology as an educational medium. Computer-based technology has become very important in EFL language learning. As computer technology facilitates person-to-person connections, information, and data, it can be used as a tool for communications and provides access to real-world situations (Haswani, 2014). Computer interaction can also be used to improve communication skills and language through interaction with computer support groups.

It is hoped that this research will help teachers and students think more purposefully about technology usage for language learning. It might also promote the professional development of teachers who desire to make greater use of computer-based technologies in their teaching practice. In today's rapid development of information technology, the further integration of technology is likely to benefit many English learners. This study sought to better understand how the use of computer-based technology supports language learners. It may generate more questions about the most effective use of technology to support language learners. It might also challenge readers to consider how teachers might enhance emotional communication with students with support of computer-based technology.

REFERENCES

Abunowara, A. M. (2016). Using technology in EFL/ESL classroom. *International Journal of Humanities and Cultural Studies (IJHCS), 1*(2), 7-23.

Anderson, K., & May, F. A. (2010). Does the method of instruction matter? An experimental examination of information literacy instruction in online, blended, and face-to-face classrooms. *The Journal of Academic Librarianship, 36*(6), 495-500.

Behroozizad, S., Nambiar, R., & Amir, Z. (2014). Sociocultural theory as an approach to aid EFL learners. *Reading*, *14*(2), 217-226.

Bernath, U. (2009). *Distance and e-learning in transition: Learning innovation, technology and social challenges*. John Wiley.

Bitner, N., & Bitner, J. (2002). Integrating technology into the classroom: Eight keys to success. *Journal of Technology and Teacher Education*, *10*(1), 95–100.

Bond, M. H. (ed.). (2000). *The psychology of the Chinese people in English learning*. Oxford University Press.

Burke, C. (1987). Burke reading interview. *Reading Miscue Inventory: Alternative Procedures.*

Cabanatan, P. (2003). Integrating pedagogy and technology: The SEAMEO INNOTECH Experience. Presentation to experts meeting on teachers/facilitators training in technology-pedagogy integration, Bangkok, Thailand, 18–20 June.

Cardon, P. L. (2000). At-risk students and technology education: A qualitative study. *Journal of Technology Studies, 26*(1), 49-57.

Chan, W. M. (2011). *Media in foreign language teaching and learning*. Berlin, Germany: De Gruyter Mouton.

Chen, H. Y. (2005). Computer Mediated Communication: The Use of CMC to Develop EFL

Learners' Communication Competence. *The Asian EFL Journal* 7(1).

Chen, L., Chen, H., & Wang, N. (2009). Distance education in China: The current state of e-Learning. *Campus-Wide Information Systems, 26*(2), 82-89.

Chun, D. M., & Plass, J. L. (1996). Effects of multimedia annotations on vocabulary acquisition. *The Modern Language Journal*, 80, 183–198.

Cohen, M. (1993). Machines for thinking: The computer's role in schools. *Educational & Training Technology International*, *30*(1), 57–59.

Cornbleth, C. (1990). *Curriculum in context*. London: The Falmer Press. Corporate training conference. (2002). *E-Learning*, *3*(1), S8.

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches. (4th edition). SAGE.

Cross, J. (2004). An information history of eLearning. *On the Horizon, 12* (3), 103-110.

Cullen, R., Kullman, J., & Wild, C. (2013). Online collaborative learning on an ESL teacher education programme. *ELT Journal, 67*(4), 425-434.

Danli, L. (2008). Scaffolding and its impact on learning grammatical forms in tertiary Chinese EFL classroom. Unpublished doctoral dissertation, Hong Kong Baptist University, Hong Kong.

Davidson, C., & Tomic, A. (1994). Removing computer phobia from the writing classroom. *ELT Journal*, *48*(3), 205–213.

Dryden, G., & Vos, J. (1994). *The learning revolution: A lifelong learning programme for the world's finest computer: Your amazing brain*. Jalmar Press.

Fan, M., & Antle, A. N. (2020). An English language learning study with rural Chinese children Using an augmented reality App, *Proceedings of the Interaction Design and Children*, 385-

397.

Gangaiamaran, R., & Pasupathi, M. (2017). Review on use of mobile Apps for language learning, *International Journal of Applied Engineering Research*, 12(21), 11242-11251.

Gilakjani, A. P. (2014). A detailed analysis over some important issues towards using computer technology into the EFL classrooms. *Universal Journal of Educational Research, 2*(2), 146-153.

Guo. X. (2014), The English Learning Based on the Network Environment. *Foreign Language Learning*, 2014 (1).

Hamidi, F., Meshkat, M., Rezaee, M., & Jafari, M. (2011). Information technology in education. *Procedia Computer Science, 3*, 369-373.

Haswani, F. (2014). The role of technology in EFL classroom. *IJEE (Indonesian Journal of English Education), 1*(2), 107-118.

He, K. (2013). *On the Definition of Mobile Learning*, [J]. Education. 2013: 17. Normal University Press.

Hesse-Biber, S. N. (2010). *Mixed methods research: Merging theory with practice*. Guilford Press.

Hockly, N. (2013). Mobile learning. *ELT Journal, 67*(1), 80-84.

Hubackova, S. (2015). History and perspectives of eLearning. *Procedia - Social and Behavioral Sciences, 191*, 1187-1190.

Jauregi, K. & Banados, E. (2008). Virtual interaction through video-web communication: A step towards enriching and internationalizing language learning programs. *European Association for Computer Assisted Language Learning, 20*(2), 183-207.

Johnson, A. (2009). The rise of English: The language of globalization in China and the

European Union. *Macalester International, 22*(12), 131-168.

Kalanzadeh, G. A., Soleimani, H., & Bakhtiarvand, M. (2014). Exploring the influence of using technology on Iranian EFL students' motivation. *Procedia-Social and Behavioral Sciences, 98,* 814-823.

Kern, R., Ware, P., & Warschauer, M. (2008). Network-based language teaching. *Encyclopedia of language and education, 4,* 281-292.

Kim, H. K., & Rissel, D. (2008). Instructors' integration of computer technology: Examining the role of interaction. *Foreign language annals*, *41*(1), 61-80.

Klimova, B. (2018). Mobile Phones and/or smartphones and their Apps for teaching English as a foreign language, *Education and Information Technologies,* 23, 1091-1099.

Li, L., & Walsh, S. (2010). Technology uptake in Chinese EFL classes. *Language Teaching Research*, *15*(1), 99–125.

Mashhadi, V. Z., & Kargozari, M. R. (2011). Influences of digital classrooms on education. *Procedia Computer Science, 3,* 1178-1183.

Matthew, K. (1997). A comparison of the influence of interactive CD-ROM storybooks and traditional print storybooks on reading comprehension. *Journal of Research on Technology in Education, 29*(3), 263.

Md Ali, A., & Richardson, J. (2012). Web interactive multimedia technology: Implementation from two perspectives. *International Journal of New Computer Architectures and Their Applications*, *2*(1), 154.

Mishra, P., & Koehler, M. J. (2006). *Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge*. Teachers College Record, 1017-1054.

Mohd Zin, M. Z., Latif, M. S. A., Bhari. A., Sulaiman, R., Rahman, A. A., Mahdi, A. F., &

Jamain, M. S. (2012). Education quality enhancement via multimedia technology. *Asian Social Science, 8*(10).

Moore, J. L., Dickson-Deane, C., & Galyen, K. (2011). E-learning, online learning, and distance learning environments: Are they the same? *Internet and Higher Education, 14*(2), 129-135.

Nakata, T. (2011). Computer-assisted second language vocabulary learning in a paired-associate paradigm: A critical investigation of flashcard software. *Computer Assisted Language Learning, 24*(1), 17-38.

Nunan, D. (1989). *Designing tasks for the communicative classroom*. Cambridge University Press.

Sadeghi, K., & Dousti, M. (2014). The effect of length of exposure to computer-based vocabulary activities on young Iranian EFL learners' vocabulary gain. *Theory and Practice in Language Studies, 4*(8), 1692.

Sandholitz, J. H. Ringstaff, C. & Dwyer, D. C. (2000). Teaching with Technology: Creating Student-centered Classrooms. Teachers College Press.

Selwyn, N. (2017). *Education and technology: Key issues and debates* (2nd ed.). Bloomsbury Academic.

Shoffner, M., De Oliveira, L., & Angus, R. (2010). Multiliteracies in the secondary English classroom: Becoming literate in the 21st century. *English Teaching-Practice and Critique, 9*(3), 75-89.

Sparkes, A. (1992). *Research in physical education and sport: Exploring alternative visions*. The Falmer Press.

Squires, A. (2009). Methodological challenges in cross-language qualitative research: A research review. *International Journal of Nursing Studies, 46*(2), 277-287.

Srivastava, E., & Agarwal, N. (2013). E-learning: New trend in education and training. *International Journal of Advanced Research*, *1*(8), 797-810.

Tamim, R. M., Bernard, R. M., Borokhovski, E., Abrami, P. C., & Schmid, R. F. (2011). What forty years of research says about the impact of technology on learning: A second-order meta-analysis and validation study. *Review of Educational Research*, *81*(1), 4-28.

Thorne, S. L., & Payne, J. S. (2005). Evolutionary trajectories, internetmediated expression, and language education. *CALICO Journal*, 371–397.

Tong, Q. (2014). On modern technology and its effects on education. *Teaching Practice and Research.* Eastern China University Press.

Triacca, L., Bolchini, D., Botturi, L., & Inversini, A. (2004). Mile: Systematic usability evaluation for e-Learning web applications. *AACE Journal, 12*(4).

Usher, R. (1996). A critique of the neglected epistemological assumptions of educational research. In D. Scott & R. Usher (Eds.), *Understanding educational research* (pp. 9–32). Routledge.

Warschauer, M., & Healey, D. (1998). Computers and language learning: An overview. *Language Teaching*, *31*(2), 57–71.

Wentworth, D., & Green, M. (2011). Mobile learning: Anyplace, anytime: According to new ASTD-i4cp research, 65 percent of employers are either using, considering, or currently developing learning for mobile devices. *T + D*, *65*(7), 25.

Wright, S., & Zheng, L. (2018). *English in Chinese higher education: Past difficulties, current initiatives and future challenges.* University of Portsmouth.

Wroblewski, G. 2013. “Using Computer-based Flashcards to Introduce and Review New Vocabulary.” The Language Teacher 37/i: 32-33.

Wu, W. and Marek, M (2009) The Impact of Teleconferencing with Native English Speakers on English Learning by Taiwanese Students. International Journal on E-learning, 8(1), 107-126.

Xu. K, & Dai. X. (2003). The differentiation study of teaching practice based on the Wechat. *Electronic Education Research*, *10*,18-23.

Yin, R. (2017). *Case Study Research and Applications* (6th ed.). Sage Publications.

Yusuf, N. & Al-Banawi, N. (2013). The impact of Changing Technology: The case of e-Learning. *Contemporary Issues in Education Research – Second Quarter 2013, 6(*2*),* 173-180.

Zhao, Y. (2003). Recent developments in technology and language learning: A literature review and meta-analysis. *CALICO Journal*, 7–27.

Zhong, Y. X., & Shen, H. Z. (2002). Where is the technology-induced pedagogy? Snapshots from two multimedia EFL classrooms. *British Journal of Educational Technology*, *33*(1), 39–52.

APPENDIX A

Personal Interview Questions

1. Can you tell me about the computer-based technologies your university provides you for learning/teaching EFL; I would appreciate a description of the ones you find most useful.

2. I'm trying to understand how college EFL teachers take advantages of modern computer-based technologies in their courses. Can you think of any kind of computer-based technology that you have used or are using in your EFL class?
   A. Will you tell me about the computer-based technology you've found most useful in teaching EFL? How did you learn it? How do you use it in your teaching?
   B. Which computer-based technology do you think your students enjoy the most? Learn from the most? Why?
   C. What advice do you have for other ELTs who want to incorporate more computer-based technology in their teaching?

3. Do you ever try anything else?
   (The conversation often cycled between questions 2 and 3, depending on how much the teacher would share with me about this.)

4. Are there any EFL teachers in your university who apply computer-based technologies in their class that has particularly impressed you? How?

5. In what way do you think computer-based technologies affect students' quality of learning? And why?

6. In what way do you think the application of technology can be improved in your classroom teaching? What do you think would help you get better at incorporate technology in your teaching?

7. Is there anything new that you want to try in the future? Why that computer-based technology? How do you think this new technology can help to improve the quality of teaching and learning?

APPENDIX B

Participant Informed Consent Form

INTRODUCTION

The purposes of this form are to provide you (as a research study participant) information that may affect your decision as to whether or not to participate in this research and to record your consent to be involved in the study.

RESEARCHER

Lingao Li (EdD student, George Fox University)

STUDY PURPOSE

The purpose of this research is to explore the experiences of a sample of Chinese university teachers of English as a Foreign Language (EFL) on the effectiveness of implementing computer-based technologies in their classes. Specifically, this qualitative research will seek to document the participants' views on 1) the types of computer-based technology used in their classes; 2) the role of computer-based educational technology in teaching EFL pedagogy; 3) the potential benefits in using computer-based instructional technologies in EFL; 4) the challenges and/or barriers to the effective use of computer-based instructional technologies in EFL instruction. This research is especially significant as it includes a unique set of educators in a unique educational setting, implementing emerging educational technologies.

DESCRIPTION OF RESEARCH STUDY

This project involves a case study with a small sample of Chinese university EFL teachers. It will include personal interviews and, as allowed by COVID-19 circumstances, direct observation of computer-based technology practices in class instruction. The interviews will be audio

recorded and transcribed by the researcher (who will be the only person with access to the transcripts). Notes of the direct observations of class use of computer-based technologies will be taken by the researcher and available only to her as well. The participant will likely contribute about 2 to 2 ½ hours of time to the research.

RISKS

There are no known risks from taking part in this study, but in any research, there is some possibility that you may be subject to risks that have not yet been identified. It is important to know that the localized nature of this study makes it difficult to guarantee complete confidentiality. It may be possible that others will know what you have reported. Because of this, you will be free to strike data or information from the record, should you feel concerned about any adverse impact on you.

BENEFITS

This research is especially significant as it includes a unique set of educators in a unique educational setting, implementing emerging educational technologies in Chinese universities offering English as a Foreign Language.

CONFIDENTIALITY

Due to the nature of this small, qualitative study, the researcher cannot guarantee complete confidentiality of your data. However, the researcher is committed to providing as many safeguards as possible including the use of pseudonyms, reporting the findings in such a way as to make it difficult to decode any individual's identity. I will also destroy all research materials (including signed letters of consent and audio recordings upon completion of the study).

WITHDRAWAL PRIVILEGE

Participation in this study is completely voluntary. It is okay for you to say "no." Even if you consent now, you are free to withdraw consent later and withdraw from the study at any time. Your decision will not affect your relationship with George Fox University or otherwise cause a loss of benefits to which you might otherwise be entitled. If you choose to withdraw from the study, the researcher will discuss your preferences for any data in which you were a part.

VOLUNTARY CONSENT

Any questions you have concerning the research study or your participation in the study (before or after your consent), will be answered by Lingao Li (lli09@georgefox.edu) or my dissertation chair, Dr. Terry Huffman (thuffman@georgefox.edu). By signing this form, you agree knowingly to assume any risks involved. Remember, your participation is voluntary. You may choose not to participate or to withdraw your consent and discontinue participation at any time without penalty or loss of benefit. In signing this consent form, you are not waiving any legal claims, rights, or remedies. A copy of this consent form will be given (offered) to you.

Your signature below indicates that you consent to participate in the above study.

Participant's Signature_____

Printed Name_____

Date_____

Contact Information

Name of Researcher: Lingao Li *EdD Candidate, George Fox University* *Email: lli09@georgefox.edu*	*Name of the chair: Dr. Terry Huffman* *Professor of Education, George Fox University* *Email: thuffman@georgefox.edu*