



CHINESE STUDENTS' PERCEPTIONS ON EFL CLASSROOM
LEARNING ENVIRONMENTS AND THE USE OF MULTIMEDIA AS
A CONSTRUCTIVIST APPROACH TO ENGLISH LANGUAGE
LEARNING AT PU'ER UNIVERSITY

Name: Chunxia Xu

ID No. 6119490

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF ARTS
in English Language Teaching
Graduate School of Human Sciences
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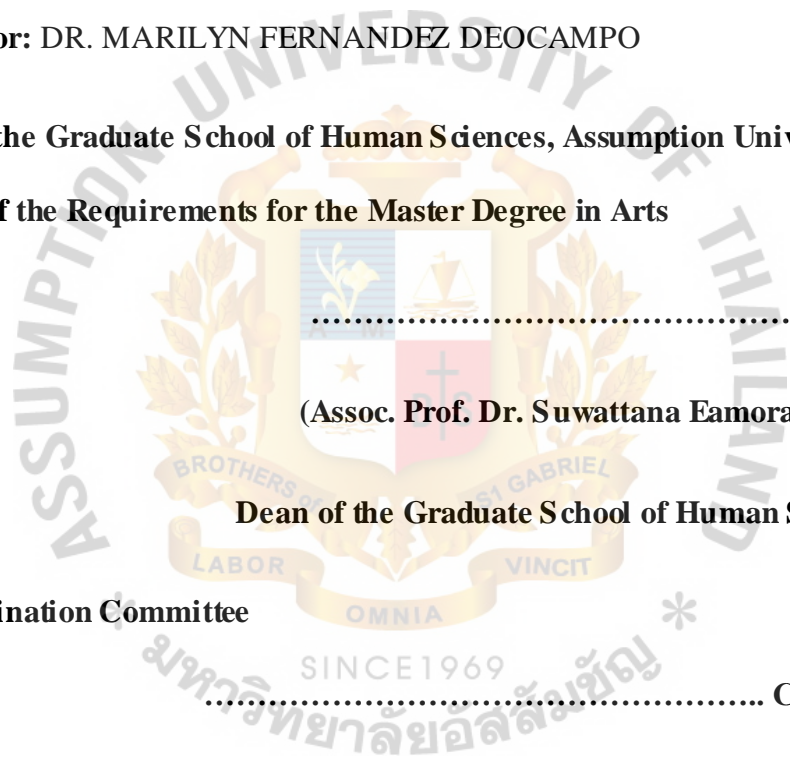
Thesis Title: CHINESE STUDENTS’ PERCEPTIONS ON EFL CLASSROOM LEARNING ENVIRONMENTS AND THE USE OF MULTIMEDIA AS A CONSTRUCTIVIST APPROACH TO ENGLISH LANGUAGE LEARNING AT PU’ER UNIVERSITY

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ABSTRACT**ID. No.:** 6119490**Key Words:** CONSTRUCTIVIST APPROACH, EFL CLASSROOM LEARNING ENVIRONMENTS, MULTIMEDIA, STUDENTS' PERCEPTION**Name:** XU CHUNXIA**Thesis Title:** CHINESE STUDENTS' PERCEPTIONS ON EFL CLASSROOM LEARNING ENVIRONMENTS AND THE USE OF MULTIMEDIA AS A CONSTRUCTIVIST APPROACH TO ENGLISH LANGUAGE LEARNING AT PU'ER UNIVERSITY**Thesis Advisor:** DR. MARILYN FERNANDEZ DEOCAMPO

The focus of this study was to achieve its two objectives: 1) To determine the Chinese students' perceptions on EFL classroom learning environments; and 2) to identify the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning. Quantitative research design was used to collect and analyze the data from 200 Chinese students from Pu'er University who participated in this study using convenience sampling. These two objectives were attained using a 5-point Likert scales questionnaire to collect data while descriptive analysis by means of *Mean* and *Standard Deviation* was used for the data analysis.

The results of the findings have indicated the following results; the Chinese students' perceptions on the EFL environment were first justified with the facilities that

teachers and students used in the EFL classroom. According to the students PowerPoint (PPT), Online Test Software's, videos and songs were used in teaching, however, the teaching was still teacher-centered and textbook materials were still regularly used. The teaching facilities and teaching approach were supported by the overall English language environment. Out of 200 Chinese students, 84 or 42% indicated that 'sometimes they feel bored as teachers talk all the time'. Subsequently, 51 Chinese students or 25.5% indicated that, although the English language classroom is 'good and friendly' it 'lacks communication among students'. This followed by 48 Chinese students or 24% 'feel very comfortable when multimedia were used in 'teaching and learning'. The findings on students' perceptions on the English classroom facilities and teaching approach were supported by the findings of Chinese students learning processes environment where 'Learning communicate' had $M=2.32$ and $SD= 1.20$, interpreted as 'low'. 'Learning to investigate' had $M=4.04$ and $SD=.96$ indicated as 'high' and 'Learning to think' had $M=4.00$ and $SD=.96$ interpreted as 'high' too.

As for result of the objective two, Chinese students' perception on the use of multimedia with regards to 'Relevance' had a $M=4.03$ and $SD= .96$ interpreted as 'high', 'Ease to use' with $M= 4.02$ and $SD= .95$ is also interpreted as 'high' and lastly 'Challenge' had $M= 4.03$ and $SD= .95$ in which interpreted also as 'high'. The indication is that, Chinese students' perception on the use of multimedia in the English classroom seems to be positive.

Pedagogical implications for teaching and learning were provided in the study , such as, to promote the use of multimedia as constructivist approach to teaching and learning in college English classrooms to create a more student-centered classroom so they can use their communicative skills more in the classroom.

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CHAPTER I

INTRODUCTION

This chapter outlines the numbers of necessary contents as the general overviews of the purpose of this study by identifying the Chinese EFL classroom learning environments and students' perceptions in using the multimedia as a constructivist approach to improve Chinese university students' English language ability. This discusses the background of the study, rationale, research questions, and research objectives. The theoretical framework, conceptual framework, scope of the study, definitions of terms and the significance of the study will also be discussed.

Background of the Study

The 21st century has illustrated how fast and sudden changes in technology, while there are various technological dimensions, Web 4.0 has illustrated the unprecedented need for technological advancement within all areas of society, including education (Sawatsuphphon, 2020).

With particular emphasis on English language teaching and learning, second language learners are pressured more than previously to ensure that their competency level fulfills the demands of career goals and employment requirements, in addition to educational admission and graduation conditions.

In China, English foreign language teaching is characterized by teachers leaving students with limited space to play an autonomous role and not allowing them to be the focus of learning (Hu, 2005). EFL learning in China is also dominated by tests. Its main purpose is to prepare students for various language tests, not to cultivate students' language skills and knowledge for a long time. In this classroom environment, EFL students usually have to rely

entirely on teachers, and their personal needs for language development cannot be met (Hu, 2016).

Sarowardy and Halder (2019) stated that the use of multimedia has claimed, or has been claimed for a significant period of time, to be an integral part in the process of imparting as well as perceiving lessons in classroom.

While traditional methods have been maintained as a significant factor for educators to promote better learning over the past few decades, multimedia has not yet been fully integrated into the instructional program for all schools.

Multimedia technology provides a sense of realism and good functions, to a large extent, cultivates students' interest and motivation in learning and their ability to participate in classroom activities. In practice, if multimedia technology is properly used in English teaching, students can make full use of spoken English to improve their comprehensive ability. This is the purpose of introducing multimedia technology into teaching. In this way, it can play a role in training the students' listening, speaking, reading and writing, making teachers' guidance work, helping students obtain basic knowledge and language training in the classroom through multimedia learning, improve their English expression ability and lay the foundation. The basis for their English communication (Xu Jun, 2010). Of course, under the guidance of the teacher, the teacher needs to encourage students to use their thoughts and words, and actively participate in exercises or activities. Multimedia produces audio and sound through teaching materials with images and animations. Don't overuse courseware just to increase teaching function. By applying multimedia technology in teaching, students who actively participate in teaching will get better classroom participation.

According to Crystal (2003), English dominates as the subject learned by most students in the world today. In order to help students', learning English as a Second

Language (ESL) has been adopted by many countries, and English is currently studied as a foreign language in China. As a result, the students and their perceptions towards different learning methods using the constructivist learning environment is even more important.

In the international arena, the constructivist teaching approach has developed maturely, and established its position as the theoretical basis of foreign language teaching. Establishing a teaching model that is appropriate to the student's learning and to the current level of the student tends to produce a competent teacher (Hallinger & Murphy, 2015). In this new mode, on the one hand, teachers can play a good role to organize the classroom efficiently, and help students to learn; on the other hand, students' English skills in listening, speaking, reading and writing might improve. Constructivism is the philosophical and scientific position that knowledge arises through a process of learning active construction (Mascolol & Fischer, 2005).

Bringing together social constructivism and multimedia as potential methods of improving English speaking competency; there is an opportunity to develop student academic achievement grades in order to improve the national standards that benefit the nation. With this in mind, current students may be able to enter the employment market with more opportunities and greater advantages than previous generations, and be ready for 21st century challenges they are likely to face in the digital age.

Rationale

The role of EFL into an international language has become increasingly prominent. As English is an indispensable part of Chinese foreign language classrooms, students' enthusiasm for learning English has also risen unprecedentedly. Although the importance of English has been widely recognized, Chinese students and teachers often say

that there will be a major challenge in acquiring language, that is, "China does not have a good English language environment" (Jiang 2003). In other words, there are not enough opportunities to use English in real life and classroom learning environments, and lack of access to real English materials. For Chinese students, there is no unique natural environment for English learning. The classroom has undoubtedly become the main place for English language input, and the classroom environment is the main factor affecting the effectiveness of students' English learning. Thus, the need for multimedia and constructivist approach should be integrated in teaching English as a foreign language in the English classrooms in order to upgrade the traditional methods for the betterment of digital age learners. As such, schools need to have greater resources between various teaching strategies to be more collaborating with other strategies in the context of the 21st century through the use of multimedia.

In addition, the English language departments in Chinese institutions seem to not take full advantage of the psychological aspects of foreign language learning. Studies by Wolfe (2001) have shown that human beings take more information when it is provided to them through visual means, as opposed to reading text. For this purpose, multimedia should be more utilized in the foreign language departments, especially in the context of Chinese education. Based on some studies conducted, multimedia is not completely accepted or fully used in the educational setting, particularly where speaking skills are concerned (Tse-Kian, 2003).

In general, on the one hand, the use of multimedia technology is conducive to students' understanding of knowledge, stimulates students' interest in learning, provides space for students to think, explore and innovate, activates the classroom atmosphere, and makes the originally boring text content become vivid and interesting. Greatly improve classroom teaching efficiency. On the other hand, the use of multimedia technology to create

courseware frees up a lot of time for teachers to write in the classroom. With a simple tap, you can clearly display the teaching content and speed up the classroom rhythm, thereby winning teaching time. At the same time, multimedia courseware can also provide students with Provide a lot of background knowledge about the geographical scenery, historical stories, character stories of various countries related to the text content. Stimulate students' thinking, improve students' enthusiasm for learning, broaden students' knowledge, and enhance their comprehensive language ability.

In the establishment of China's recent global integration, the action of English as a language in community politics, economical culture, scientific knowledge and technique and education is more obvious than before (Scott and Sam, 2016). Traditional Chinese teaching without multimedia in China places too much emphasis on interpreting grammar and vocabulary, therefore, learners are in a very passive position. In most cases, learners are asked to remember knowledge one by one. There is some doubt that this will increase the burden on students and reduce their interest in learning the language. Thus, providing students with multimedia to accommodate their learning competencies may assist in removing the stigma which is commonly found in Chinese education.

Using multimedia at the same time has some benefits in promoting constructivist learning. First of all, by incorporating multimedia into the constructivist learning environment, students learn to design multimedia in this process and can enhance their creativity, and in another way improve their expressive ability and communication ability. The construction environment based on constructivism was created to enable these students to become autonomous and independent learners, participate in their own learning process, and develop their problem-solving skills, and use analytical, critical and creative thinking. The use of multimedia technology can promote constructivist learning, such as

enabling students to become active participants in their own learning process, not just passive learners of educational content.

Therefore, this study would like to understand the Chinese EFL classroom learning environment and student's perceptions on the use of multimedia as a constructivist approach to English language learning. By using a combination of multimedia and constructivist methods in the classroom, students can be more capable of improving themselves and communication skills.

Research Questions

The researcher has two main questions in which this study intends to ask, they are as follows:

1. What are the Chinese students' perceptions on EFL classroom learning environments in Pu'er University?
2. What are the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning in Pu'er University?

Research Objectives

There are two research objectives for which this research would be undertaken, they are as follows:

1. To determine the Chinese students' perceptions on EFL classroom learning environments in Pu'er University.
2. To identify the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning in Pu'er University.

Theoretical Framework

This study intends to identify the Chinese EFL classroom environment and the levels of students' perceptions of the use of multimedia as the constructivist approach to learning. Constructivist approach believes that learning happens when there is practical meaning and theory applied to the situation or classroom learning environment.

Vygotsky (1978) stated that personal experiences play an important role and active participation is necessary for students to interpret information and construct their own sense of knowledge. In this way, past experiences as well as cultural background play an important function for interpretation. This means illustrating how the two correlating issues connect when different people come together to form a social environment for which general understanding takes place. When this social level is achieved, there is then the intrapsychological stage where personal understanding begins. In fact, McLeod (2019) further states that “learners construct new knowledge on the foundations of their existing knowledge” (para. 25).

In one way, multimedia learning takes advantage of the brain's ability to establish a connection between the verbal and visual representation of content, which leads to a deeper understanding and further supports the transfer of learning to other situations. Therefore, the use of images, video and text together will likely to stimulate the brain of the student, and at the same time the student's attention might increase. In this case, students will likely to identify and solve problems easily in a multimedia learning environment than when using textbooks for teaching.

McLeod (2019) states that “Constructivism's central idea is that human learning is constructed, that learners build new knowledge upon the foundation of previous learning.

This prior knowledge has a tendency to influence a new or modified knowledge of an individual construct from new learning experiences” (p. 256).

Information as a positive process may be passively receive, but understanding cannot, because it must come from establishing a meaningful connection between a priori knowledge, new knowledge and the learning process (McLeod, 2019, para. 7).

In China, English is learned as a foreign language, and Chinese EFL students rarely speak English in daily life. However, students do need oral presentations and discussions in order to learn what they may eventually encounter in their work and / or work. Communicate with others in English. Therefore, combining constructivist methods with the use of multimedia can effectively improve students' English, which is particularly important for Chinese college students and the second language learning and teaching process.

The figure represents the conceptual framework of the Chinese EFL classroom environments and students' perception on the use of multimedia and English language learning in Pu'er University.

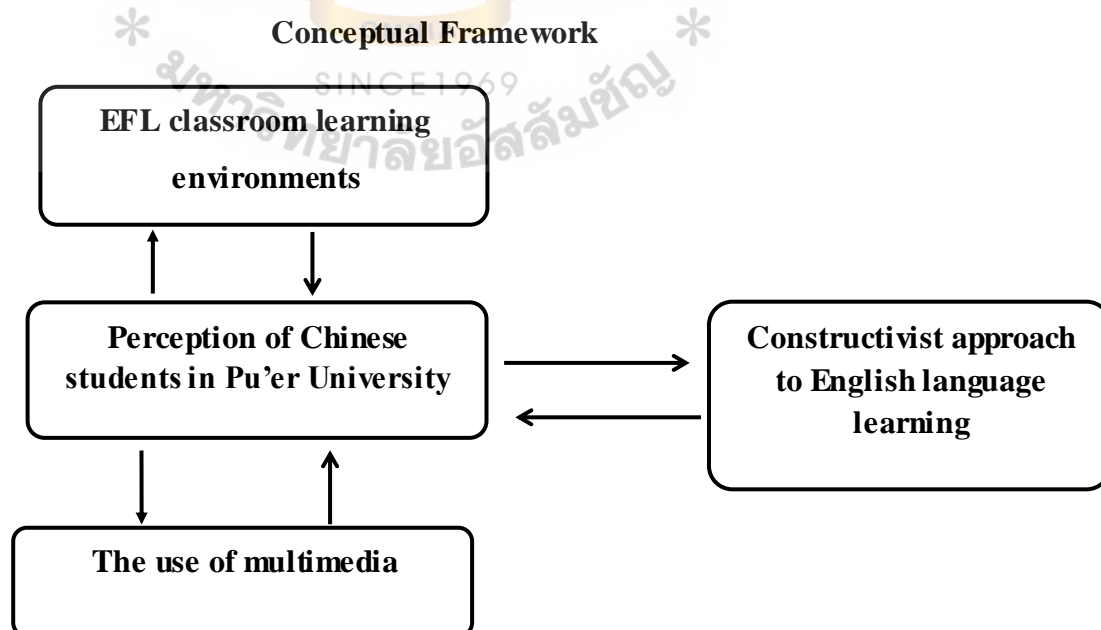


Figure 1. Conceptual framework

Scope of the Study

This research was conducted during the academic year of 2019-2020 within the Foreign Language Department at Pu'er University, China. This study used mixed-method using the explanatory technique. This means, the analysis of the data was done quantitatively.

The participants included 200 English majors' students of the Foreign Language Department at the Pu'er University, 50 males and 150 females; they are between 18 and 25 years old. While this study intends to look at the classroom environment and solely look at students' perception on the use of multimedia as tools using the constructivist approach in second language learning.

The instruments that would be used to collect data from 200 participants were questionnaire survey.

While the study was conducted in China, there are a number of limitations perceive in the study. In particular, this study looked at only students and not teachers, educational leaders, parents or other stakeholders. In addition, as one part of the study deals perceptions, this may contain subjectivity and emotional biases. Thus the researcher would be using Items Objectivity Congruence (IOC) to obtain the validity of this research.

Definitions of Terms

The definitions of terms presented below are the key terms which clarify the meaning of words used in the study, to assist readers in understanding the terminology used.

Chinese Students refer to males and females at the Foreign Languages Institute between the ages of 18 and 25, from Pu'er University.

Constructivist approach refers a belief that learning or knowledge occurs when people communicate or interact with more knowledgeable people.

EFL classroom refers to the Pu'er University School of Foreign Languages facility used to teach and learn English.

English as a Foreign Language (EFL) refers to the language that Chinese students who are non-native speakers learned as a target language.

Learning environments refers to the teaching approaches and facilities in a classroom setting where the teaching and learning takes place.

Multimedia refers to different types of technology or websites used by the teachers during the instructional lesson, for example online materials, video clips, television from the internet, etc.

Perceptions refers to individual students point of view as they observe the EFL classroom learning environments and the use of multimedia as a constructivist approach to English language learning.

Pu'er University is an undergraduate institution the School of Foreign Languages situated where the study is conducted.

Significance of the Study

The establishment of a constructivist approach using multimedia as a teaching model perceives to be helpful to the student's learning levels and needs, especially in English communication as multimedia are critical for economic, social and personal success in the future. In addition, understanding the students' perceptions using the multimedia, as part of the constructivist approach in the English classroom, might provide teachers or learners'

different approach and resources needed to improve their English communication.

Furthermore, the results of this study might help teachers to make necessary adjustments to lesson plans, make changes to the learning and teaching method in which Chinese students would have more opportunity to use the English language in the classroom.

For teachers and learners

Social constructivism is useful and helpful to both students and teachers because it fosters students' self-reliance and autonomy in learning, helping students to better control their own learning process so teachers would be able to understand learners better. In particular, students might be able to benefit better when learning in the classroom that fosters social interaction through practical and interactive activities where they can use more language especially English within teams and groups.

Additionally, students will likely achieve the most from the social constructivism as a result of multimedia usage because teachers' will likely to realize students' learning potential and weaknesses.

As for teachers, social constructivism using multimedia in the classroom may support better learning results for learners as they will be able to find different resources available online. Thus this might provide teachers' advantages since the process of the learners' knowledge can be more effective and efficient when students have visual resources that can scaffold their learning process.

Thus, in the future these following abilities will likely improved:

- Increased student attendance and concentration
- Greater motivation to complete individual and group related tasks
- Higher grades in collaborative and team or group work activities

- Improved desire to learn interdependently and independently
- A desire to be more self-autonomous in the classroom and at home
- Higher grades in various skill, such as communication, engagement, teacher-student interaction, as well as an improvement in self-development, mental health and an increase in overall academic achievement scores.

With regards to the *Constructivist Multimedia Learning Environment Survey (CMLES)*, the teachers will be able to identify whether or not they are achieving their teaching goals within the current learning environment.

School administrators:

Education has experienced a wide range of challenging issues in the 21st century. While these challenges can often be overlooked in order to remain stable in the hope of maintain the status-quo, traditional methods may not fully support a whole-learning approach for the digital age. Thus, student learning may be better supported with the utilization of various multimedia devices in which if school administrators support their department can be easy to achieve, thus beneficial not only for students but also for teachers. In this manner, the school will be more competitive and support 21st century learning.

Thesis Organization

This particular study was organized into five chapters.

Chapter I presented the background of the study, rationale, research questions, research objectives and the theoretical framework. Also, the conceptual framework, the scope of the study, the definition of terms and the significance of the study were discussed in this chapter.

Chapter II discussed all the related literature related to English as a foreign language, the constructivist approach to English language teaching, technology to ELT, different studies related to constructivist approach to ELT, the use of Chinese schools, the use of multimedia in English language teaching, government policy on ICT and multimedia, international education and multimedia and social constructivism education overseas. Also, the digital age and L2 learners, a constructivist theory in a Chinese context, English language teaching using multimedia, the Pu'er university, related studies on student's perceptions on the use of multimedia and summary of the related literature were discussed in chapter II.

Chapter III introduced the research design, population, research instrument, validity and reliability. And the collection of data, data analysis, and summary of research process were discussed in this chapter.

Chapter IV discussed the findings of the research question 1 and research question 2. The discussion of the findings and summary were discussed.

Chapter V presented conclusion of the study which included the summary of the study, summary of the discussion, pedagogical implications and also the limitation of the study and conclusion were be involved.

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter provides an overview of the literature in the following topics, English as a Foreign Language, Constructivist Approach to English Language Teaching and Technology to ELT. In addition, different research studies using a constructivist approach to ELT, the background of Pu'er University and the use of ICT in Chinese Schools are also presented. Moreover, the multimedia in ELT, government policy on ICT and multimedia, international education and multimedia are also talked about. Part of the other discussions in this chapter is about social constructivism in overseas education, the digital age and L2 learners, and the English language teaching of multimedia are also discussed. as well as, the summary of the literature review is fully argued.

English as a Foreign Language

The English language is an international language that is commonly used by foreigners' more than native English speakers. In fact, the English language is spoken by more second language learners than native speakers (Ocampo, 2019).

For the non-English speaking country like China, English is taught as a foreign language in which acquisition can be done by learning the language from different teachers, some are speakers of the language (English) (L1), and others use the language as their second language (L2) while the rest are speakers of English as a foreign language (EFL). Brown (2000, p. 193) pointed out that the boundary between the context of English as a second language (ESL) and English as a foreign language (EFL) has become blurred, and the two are not easy to distinguish. EFL is a traditional teaching and evaluation method. Through this method, English can be positioned within the theoretical framework of mainstream second

language acquisition (SLA) research. From this point of view, standard English norms in the mother tongue or close to the mother tongue are regarded as the goals of English teaching. Fang (2015) pointed out that the mother tongue-oriented oral English teaching method does not enable students to use English on the international stage. In other words, under different circumstances, there will be dialogue between non-native English speakers. Therefore, it is hoped that language educators and learners will be aware of the complexity of global English usage.

In 2007, the Ministry of Education of China issued a new version of "College English Course Requirements", which played an important role in promoting college English teaching reform. It can influence and expand students' willingness to communicate, and perhaps eventually have the greatest impact on EFL success in China (Peng, 2012). As it turns out In order to bring positive results to learners, optimizing the classroom environment becomes crucial. Teachers, students and classroom environment make up the entire classroom system.

Constructivist Approach to English Language Teaching

Constructivist teaching thought emphasizes student-centered teaching. The process of learning is the process by which individuals construct knowledge, in which students are the subjects of learning, cognition, and information processing. Secondly, it is advocated to teach and learn from the actual situation. It is believed that in the experience of true feelings, with the necessary learning resources, knowledge can be actively and effectively constructed, and cognitive structures can be reorganized. A gain, the whole process of teaching and learning is inseparable from the cooperation and communication between teachers, students and students. Finally, teachers should design a teaching environment for learners, provide various resources, and encourage learners to actively explore and improve the construction of knowledge systems. Researcher Can point out "constructivist approach is promising at

promoting learner' language and communicative skills as well as at fostering their autonomy, social and interactive skills contributing to their development into more confident, pro-active and responsible individuals by supporting incentives on diverse media in language learning and teaching" (Can, 2009, p 60).

Listening

It is the basic forms of language communication. Among them, "listening" is the main way to obtain information. It can be said that the cultivation and improvement of learners' listening ability are the key link in English learning. But the reality is that students don't fall in love with listening classes. The boring classroom can't stimulate students' learning motivation, which in turn affects the development of other language skills.

Several different podcasts are available to support the opportunity to listen to any topic in a fully developed English class. Podcasts can facilitate listening exercises and can be used to educate a variety of precise listening or note-taking strategies to expand the rigor of teaching at almost any stage (for example, listening to clear messages, listening to the most important ideas, and making recommendations) (Morley, 2001, p.77). For instance, students can listen to a news broadcast with topics that can later be used in a real life conversation.

Speaking

Communication plays a vital role in learning oral skills. However, for most learners, speaking is still the most difficult skill to master. Communicative language teaching originated in the mid-1960s, Due to dissatisfaction with audio language and grammar translation methods, its basic form. It takes into account the communication needs of the real world. Its purpose is to promote a "learner-centered, motivation-based" approach to teaching.

Richards and Rogers sum up the main characteristics of the communicative view of language as follows:

- Language is a system for the expression of meaning.
- The primary function language is interaction and communication.
- The structure of language reflects its functional and communicative uses.
- The primary units of language are not merely its grammatical and structural features, but categories of functional and communicative meaning as exemplified in discourse.

In order to expand the opportunity for students to communicate with the community, learners can use the media as part of a classification scheme or other learning method. When learners learn the vocabulary and grammar they need to talk to, the creation of innovative multimedia artifacts can greatly inspire their inspiration. Communicate with audiences outside the classroom, preferably with real audiences for real reasons.

Reading

Online reading or reading materials may be helpful when reading comprehension is the goal of teaching. English learners learn vocabulary in terms of word meaning, images, videos, and video recordings of word pronunciation. In addition, constructivism is especially useful for students who are learning English. Multimedia formats with a distinct sound and images can help form reading comprehension. ELL can access digital stories on his own and practice listening, reading and digital skills outside the classroom after learning the story (Harris, 2012).

Writing

Using technology for writing offers many opportunities for English learners to become writers and knowledge creators. Multimodal formats such as blogs and wikis are just a few of the various digital devices that ELL can use to talk inside and outside the classroom. Technology can participate in key functions in the English curriculum approach to educate students to better respond to their own learning. It can promote students' lack of classroom communication and inspiration (Boles, 2011). Various activities using technology can be used indoors and outdoors in the classroom. Writing for the audience outside the classroom can help reduce social isolation, so that language minority groups can be distinguished (Webb, 2006), and a method society that enables adult learners to create and maintain identity and construction (Thorne, 2009). Communication can be done by using the internet or video calls. Teachers can use iMovie to assign assignments so that students can use podcasts to process their English subjects. This activity enables students to develop their creativity and interact and mimic the scene as they interact. Telling personal stories, using idioms, proverbs and language can help students communicate naturally.

Different Research Studies Using Constructivist Approach to ELT

There have been various studies done on using a constructivist approach to ELT. Many studies have shown how constructivist teaching is effective in the dimensions of diversity across disciplines and ethnicity, academic ability, and socioeconomic line. For example, Khalid and Azeem (2012) found that using constructivist method to teaching can help students perform better and achieve high scores in literary studies.

The constructivist approach has not only been found to be effective in improving test scores, but also to effectively increase the overall participation and retention of materials.

Altun and Büyükduman (2007) conducted a qualitative study in Turkey. The 26 students and

one teacher included in the study were from the English Foundation Program. With their guidance, teachers used constructivist principles and observed students and teachers within three days of implementation. During class time, students demonstrate more responsibilities and enthusiasm, and show that by participating more in group activities, they can better relate learning to previous knowledge. Students can also use the examples of their peers to better connect. Increased classroom participation leads to permanent retention of vocabulary. In addition, students are able to focus on the course and generate new knowledge. They attribute it to the cancellation of the previously defined goals of the class and the freedom to acquire their knowledge.

Zehr (2006) found in his research that the use of collaborative teaching methods in English classrooms is very effective in helping Laos first-year students improve their English skills and make them more comfortable working in inclusive classrooms. In other words, this research shows that constructivism plays an active role in promoting students' activities and initiatives and the effects of English classroom teaching. Constructivist teaching methods are effective for English teaching and for sixth grade students' academic performance, self-concept and learning strategies.

Taylor (1995) stated that Universities are often exemplified by the paradigm of communications represented by the dominance of lectures. In such a course, knowledge is seen as a commodity that can be passed on to the student's mind. He believes that university teaching should be reformed and should be based on social constructivism. Fisher, Fraser, and Taylor (1995) developed University Constructivist Learning Environmental survey (UCLES) based on early learning environment research and constructivist research teaching. The purpose of this survey is to investigate the characteristics of university learning to emphasize its important social and psychological dimensions, with communication and reflection activities being the most valued. The first three scales - relevance, reflection,

negotiation - are focusing on the opportunities offered by university teachers to engage students in communication and reflective thinking led them to develop a deep conceptual understanding of the subject. The latter three scales: leadership, empathy, support and the importance of interpersonal skills that interested university teachers need to demonstrate persuade students to change the epistemology and learning methods they have established. UCLES is believed to help examine student perceptions and preferences, as well as the characteristics of a constructivist learning environment (Fisher et al., 1996).

In the study of Nikitina (2010), there is also clear evidence that shows when students can be allowed to conduct constructivist activities, such as using visual effects and teamwork to prepare video projects; they learn a better foreign language. She said that students liked this activity and thought it was beneficial to the teaching environment. The average social and academic status with students is the one who receives the least constructivist guidance. It also found that teachers who have less experience and are not science graduates are more active in teaching. Herr (2000) also found that teachers in advanced courses are more likely to use strong forms of presentation.

A Constructivist Theory in a Chinese Context

Kekang, a well-known expert working at Beijing Normal University, has made great contributions to the theoretical research on multimedia teaching. In his *Five Trends in the Development of Modern Educational Technology* (1996), he summarized the multi-sensory stimuli of multimedia teaching, the number and speed of information transmission is unparalleled, and it is easier to operate and more interactive than other media. The advantages of teaching which was pointed out by Kekang (1996) were the importance of constructivist theory and its theoretical basis on the trend of teaching reform. In 2004, he explained that

when applying constructivism theory to teaching reform, the current situation of Chinese education should be considered.

Other experts have also published articles on problems in multimedia English classes. Wang and Zheng (2005) expounded the problems and countermeasures in multimedia college English teaching. They found problems with teachers, students and teaching efficiency in the article. For teachers, their excessive reliance on multimedia and lack of computer skills make teaching inefficient. Wu (2006) introduced the historical development of constructivism theory in the paper and proposed the theoretical framework. She compared constructive teaching concepts with traditional teaching concepts and pointed out that they differ in teaching philosophy and teaching objectives. Four different teaching methods are mentioned: random-access instruction, scaffolding instruction, situated or anchored instruction and top-down. He Gang and Zhong (2006) conducted a survey, and the results showed that college students tend to adapt to learning styles and strategies through multimedia-assisted college English teaching.

Feng (2006) examines the application of six elements of constructivist learning design in English learning based on the analysis of social constructivist education methods and the characteristics of Chinese English teaching. Xie and Sun (2008) expounded the necessity of multimedia teaching reform in English majors, and discussed the feasibility of multimedia teaching reform on the basis of constructivist learning theory. Sun (2008) analyzed the status quo of multimedia applications, and put forward suggestions on how to improve the efficiency of English teaching. It puts forward that traditional teaching methods cannot be ignored, and should pay more attention to the idea of interaction and classroom centrality. Ma (2008) confirmed the advantages of multimedia English teaching, but also noticed these problems. She said that overemphasizing the vividness of slides can affect the achievement of teaching goals.

The amount of information should play an important role in the classroom, and the role of teachers and students has changed in a constructive classroom. She also mentioned the lack of interaction in the classroom. Huang (2009) pointed out that multimedia can't guarantee teaching efficiency, and multimedia teaching needs more improve.

The Use of ICT in Chinese Schools

A study by Zhu, Gu, Collis and Moonen (2011) found that ICT utilization in a country that has a large population is an important factor that contributes to equality of education as well as the provision of quality instructional programs. In particular, the authors referred to 'e-education' as a means to improve information and communications technologies within all schools across China. For example, ICT utilization could improve the quality of a large number of school programs and not just English language lessons, furthermore, it may assist instructional leaders in their design of professional development programs. While this may appear to be an important part of the instructional program and seem critical for the development of overall academic achievement scores, there is still a lot of debatable research that shows the actual implementation of ICT across the board. In fact, ICT utilization in schools general may be financial restrictive for many educational institutes or departments, and reduce the available resources available for other lessons. Although this is important to consider when planning for the utilization of ICT's, China may not experience a huge problem in this area. Furthermore, the value planning stages of education and the general school or university vision and mission may be more enhanced by the utilization of ICT in Chinese schools. In particular, Zhu et al (2011) initially stated that the quality of education is likely to improve for large nations. China, in particular, has over 440,000 schools (Zhu et al, 2011) and so the presence of ICT in Chinese schools or universities is likely to enhance the instructional program and encourages an increase in grade point average scores for learners, and motivates teachers to dedicate themselves more to professional development.

Despite this, because China is a large nation; there is naturally going to be a large variety of classes of people, citizens, and learners from within Chinese society. In particular, it will not be just school principals, heads of departments, or presidents of universities that will need to deal directly with the varied social classes. As a large nation, China must deal with these on a standard level in order to ensure equality of education for all Chinese people. Furthermore, the natural responsibility of equality education within the context of ICT in Chinese schools would fall on educational technologists (Zhu et al., 2011).

On the other hand, Chan (2013) noted that multimedia is “not noticeably different in China than they are in other countries. However, it is unclear whether these technologies can succeed in China’s current education system, particularly in classrooms that traditionally limit two-way interaction in favor of exam preparation and rote memorization. According to Chan (2013) in order to get the biggest potential market, digital education providers had switched the focus of their technologies from student to teacher needs (para. 9). To this end, the current education system requires radical change in order to achieve the fullest benefits provided by multimedia in a Chinese classroom environment.

As a result, equality of access to education is just as important as the quality of education, and that quality may enhance that desire of Chinese to demand equality of access as well. Therefore, educational decision makers should ensure that ICT in Chinese schools are available for all Chinese citizens and they have a fair and sustainable opportunity to maintain access to quality educational lessons without seeing huge differences across Chinese cities. In this way, the economic levels of cities across China will not be unfairly overlooked as investment for ICT is concentrated in any single area.

Technology to ELT

The word information technology is explained as —structures of technology used for creating, storing, displaying, manipulating, and exchanging informationl (Nguyen, Williams & Nguyen, 2012, p. 3). Information technology composed the use of computer-based technologies such as laptops, desktops, smart phones, tablets, software and Internet-based technologies such as the different websites, and even social networking sites that can be used in English teaching and learning (Davies & Hewer, 2009).

According to Wright (2013) technology is having an unprecedented impact on education; its future is being shaped by current and emerging technologies that are drastically changing the way in which teaching and learning are experienced. Nevertheless, there are numerous additional opportunities for learners to help them grow self-confidence and develop themselves, particularly the English learners who learn the language. These students need to remain prompt with ELT and increase more confidence to step into the 21st century learning otherwise they will be left behind (Shyamlee & Solanki, 2012). With the rapid development of science and technology, multimedia technology and its functions have an increasing influence on English teaching, and tend to shape the teaching mode of the new era. It can be seen how multimedia technology plays an active role in promoting activities and leading the teaching and learning achievements of students and teachers in the English classroom. Reshaping English teaching also means changing the skills of teacher-student communication. The expansion of the internet has facilitated the increase of the English language and has appeared at an occasion when computers are no longer restricted domains of the devoted few but rather accessible to countless (Cavalheiro, 2015).

Integrating virtual learning environments, blogs, media technologies, course management systems, useful websites and certain computer programs in English teaching

helps create the best learning conditions from a constructivist perspective. In this regard, Ghasemi and Hashemi (2011) stated that by using technology language learners can

- access, select and interpret information
- review and modify their work to improve the quality
- communicate with others and present information
- evaluate their work
- improve efficiency
- be creative and take risks
- gain confidence and independence

Teachers who make use of technology in their classrooms are aware that it provides an opportunity to differentiate instruction and change their classrooms into dynamic learning environments (Pitler & Hubbell, 2007). If applied effectively, technology implementation not only increases student learning, understanding and achievement, but also augments motivation to learn, encourages collaborative learning, and supports the development of critical thinking and problem solving skills (Schacter & Fagnano, 1999). Integrating technology into instruction tends to transform teacher-dominated classrooms into more student-centered ones (Pitler & Hubbell, 2007).

It is not appropriate to consider technical equipment and tools as an antidote to address all the problems faced by teachers and learners. It is important not to overlook the value of traditional teaching equipment and tools. It should be emphasized that technology is only a means of helping teachers. As Kajder (2003) wrote, “Focus has to be placed on learning with the technology rather than learning from or about the technology” (p. 9).

Technology-based applications and tools center on constructivist pedagogy and help language learners use cognitive skills as defined by Bloom's taxonomy as learners:

- Active, rather than passive recipients
- explore new web-based tools and applications
- Set the pace of their learning (read documents, listen or watch videos at their own convenience)
- collaborate (with their peers outside the classroom, by using blogs, wikis)
- interact (with their peers and teacher by using blogs, video-emails, etc.)
- produce (a video, blog, forum, wiki, etc.)
- reflect (on their performance, productions)
- Comment (on their peers' performance and productions)

(Kajder, 2003, p. 9)

Language learning is a behavior of creativity, imagination, exploration and collaboration. As long as technology enhances this behavior, it has an impact on student achievement.

The Use of Multimedia in English Language Teaching

In China, like in many areas of the world, teachers who are instructors in areas that are rural frequently have less pre-service preparation for school instructional leadership. In particular, rural teachers often find themselves unable to access professional development opportunities when compared to urban teachers (Zhang, 2002). This is supported by studies by Egbert et al, 2002) who noted that English language instructors in rural areas are commonly not sufficiently equipped with the right competencies for ICT integration and utilization because professional development programs or other in-service skills such as seminars, workshops, or personal learning is not adequately supported by the school administrators for the context in which the teacher requires development.

Although Lam (2000) appears to support the same conclusion, she noted that it is a psychological issue for many teachers – particularly older teachers – because they are afraid of using modern technology. Peters (2006) agrees and stated that the lack of technical expertise is a common theme for many teachers who are well acquainted with the technology in question, but he wrote that effective training and adequate assistance will encourage in-service teachers to be more competent and technically able to practically use multimedia in the ELT classroom. However, it is important that educational leaders of schools and universities provide the right support structures in which teachers may feel both encouraged and motivated to undertake skill development activities so that they can improve their in-class instructional pedagogy. This is the notion that emotions and psychology – or mind-set – supported each other (Egbert, Huff, McNeil, Preuss & Sellen, 2009).

Chan (2013) stated that in addition to professional development, technical access needs to be upgraded. In fact, he wrote that “the first step for China in addressing this digital divide will require increasing connectivity, particularly in rural and inland areas. Government funding for distance learning has reportedly extended to over 80 percent of rural schools in central and western China in recent years, but China will require far greater Internet penetration into rural households, as well as faster connection speeds and teacher training to help educators get up to speed. These incremental improvements in Internet access and human capital will ease the spread of digital education to classrooms and beyond, but what form the market will ultimately take is still unclear” (para. 7).

While Tang (2011) continued to reiterate common understandings of other researchers by stating that “multimedia computers have been used widely in China in recent years, and one of the most important domains for the application of multimedia technology is education. With multimedia technology becoming more and more prevalent in the teaching of all

disciplines, English teachers in China also wish to make full use of the technology to improve their English language instruction” (p. 293).

Despite this, Guo and Yang (2016, p. 597) argued that, “the integration of information technology with curriculum still lacks convincing proof of integration as there is less control in the experiments”. Their advice is for schools and teachers to systematically implement the integration in teaching “to pay more attention to the professional development of the large number of ordinary teachers to promote the rapid growth of the information environment”.

As a result, professional development is necessary for multimedia utilization in the context of English language teaching so that Chinese teachers will be able to make full use of it in their classroom.

Government Policy on ICT and Multimedia

The Chinese government has particularly emphasized ICT utilization for the education sector, which is no surprise since the Chan (2013) states that “in 2012, China met its long-stated goal of spending four percent of GDP on education. In 2013, total education expenditure grew by nearly 10 percent again. Spending on digital education in particular, both public and private, has expanded even more rapidly. The size of the potential digital education market in China was estimated to be £7.4 billion in 2012, which represented a 22 percent increase from the year before” (Chan, 2013, para. 4-5).

Despite this, Chan (2013) noted that “digital education is seen as a solution to many of China’s current educational needs. It has the potential to increase access to education, while lowering costs and promoting a more high-tech economy. At the same time, the rise of digital education could exacerbate the existing digital divide between China’s cities – where some 80 percent of students use the internet at home – and rural areas, where only two

percent of students have internet access in their homes” (Chan, 2013, para. 5). To this end, the Chinese economy will likely depend heavily on educational technologists to ensure that multimedia as well as technology are a source of positive improvement to the nation’s education and, subsequently, economic goals. Studies have shown that national gross domestic product is linked to the quality of education (Sawatsupaphon, 2018) and so multimedia or technology have a commonality between them in achieving a more positive quality of life for Chinese citizens in both rural and urban areas. However, as Chan has respectively noted, there could be a divide between these two types of cities, for this purpose, access to technology and stable internet is critical to overcoming the general challenges that are likely to be faced by multimedia.

While there may appear to be little difference between multimedia and technology, there have been numerous studies of multimedia research having been completed within the context of educational technology. To this end, it is clear that multimedia may be an overarching dimension or factor of technology, particularly with regards to education. However, in the academic context, Almarabeb, Amer and Sulieman (2015) noted that “multimedia is a term frequently heard and discussed among educational technologists today, unless clearly defined, the term can alternately mean a provident mix of various mass media such as text, audio and video or it may mean the development of computer-based hardware and software packages produced on a mass scale and yet individualize use and learning” (p.761), for this purpose, there is some overlap between the illustrative aspects of multimedia and the physical components of technology. This might explain why multimedia can be the overarching dimension of educational technology, as explained earlier. Despite this, Lamb (1992) stated that multimedia brings learning to life for students, while Overlock (1995) mentioned similarly that educational experiences become more motivational when using multimedia. Interestingly, universities commonly still use whiteboards or blackboards during

their lessons, in contrast to state schools which commonly use a wide variety of learning methods. In fact, Ambron, (1990) wrote that interactive multimedia do not have restraints placed on learning, and actually enhances the learning experience. For this purpose, multimedia could be described as the combination of pictures, sounds, visuals, text and illustrations to deliver information.

In a study by Agil and Alardawi (2015), they concluded that the utilization and integration of a “multimedia program was found to better cater for an increasingly less homogeneous student cohort” (p. 14), and as such, multimedia in the context of educational technology are likely to improve the learning needs and, hence, the academic achievement scores of a wide variety of Chinese students.

International Education and Multimedia

Agil and Alardawi (2015) stated that “multimedia technology-based interactive learning/training programs have recently emerged as major tools for learning in educational settings (schools), at home and for training in corporations. Multimedia aspects and an ability to interact with the programs are claimed to enhance the learning experiences” (p. 1), so it is no surprise that international education and multimedia professionals are likely to promote the idea of using various methods of multimedia in the classroom environment.

While studies around the globe tend to focus more on the Western use of multimedia in the classroom, these commonly do not include the cultural and contextual challenges that face Asian societies, which include a desire to reside with family instead of moving out, thus rural families will remain at rural schools, and these schools will need development as much as urban schools.

Despite this, there is a common link between learners abroad and those in China, that is, learners could be grouped according to their learning style, such as visual or spoken learning styles. Visual aids that are common in multimedia devices or software are frequently beneficial for language learners who are accustomed to a personality type that prefers visual learning aids. Apart from this, verbal individuals prefer spoken instruction.

Social Constructivism Education Overseas

A recent study found that personality types impact social constructivism when using multimedia. In fact, Ott, Mann and Moores (1990) concluded that “the introvert, intuitive, feeling, judging personality types would prefer multimedia training, while the Extrovert, Sensing, Thinking, Perceiving would prefer lectures. However, after thirty years of testing multimedia instruction that accommodates different learning styles, there is still no convincing evidence that multimedia instruction designed to accommodate learning styles results in learning improvements” (p. 4).

However, some studies have noted that the success of multimedia in the language classroom is dependent upon a number of conditions, which includes the learning objectives, the subject itself, the personality and learning style of the student, as well as the teacher’s instructional character.

For this purpose, cultural differences in international education and social constructivism may be an important component to the differences of success between China and other nations. In fact, if PowerPoint is considered a type of low multimedia; many studies have found that there is very little evidence that PowerPoint leads to higher academic achievement scores or improved learning (Craig & Amernic, 2006), particularly in a social constructivist classroom setting. Despite this, an earlier study by Tes-kian (2003) found that “students reactive positively towards this study mode [social constructivism] and improved

their interpersonal and collaborative learning skills” (p.293). While there is conflicting research which illustrates that difference in results of social constructivism and multimedia use, the study was completed in Malaysia. This shows that Asian integration of multimedia within social constructivist classroom environments react positively towards the variables respectively. This might reflect a positive move towards creative thinking, critical analysis of problematic situations as well as evaluation and assessment (Tse-kian, 2003).

Although the constructivist learning process includes individual or collaborative work that investigates a problem to work creatively, active learning utilizing multimedia may assist in providing motivational and promotional support to students of a wide variety of learning styles. While student characters and their personality traits are a factor in determining the level of engagement, Vygotsky (1978) states that previous knowledge can be built upon and new information used to understand new perspectives. Multimedia assists the development of these new paradigms, particularly, the social constructivism. Since social constructivism is based on the Zone of Proximal Development (ZPD) authored by Vygotsky (1978), greater understanding is able to be developed with the assistance of advanced learners. With this mindset, the advanced students are able to interact more with lower performing students with the utilization of multimedia in their classroom presentations, group projects, individuals’ tasks, or in general academic support areas.

In fact, Tse-kian (2003) wrote specifically on multimedia in a constructivist classroom environment and stated that:

with multimedia projects, students can make use of the knowledge presented to them by the lecturer, and represent them in a more meaningful way, using different media elements. These media elements can be converted into digital form and modified and customized for the final project. By incorporating digital media elements into the project, students are able to learn better since they use multiple

sensory modalities, which would make them more motivated to pay more attention to the information presented and better retain the information. Therefore, multimedia application design offers new insights into the learning process of the designer and forces him or her to represent information and knowledge in a new and innovative way (Tse-kin, 2003, p.297).

As a result, while listening, reading, writing and speaking are teaching skills that commonly require face-to-face assistance, the use of multimedia by either teachers or students within the classroom environment is likely to assist in the improvement, development, or possibly the speedy development of second language learners' acquisition of these respective skills. In particular, despite this, the research is undecided; as such further studies in the area of multimedia use and language learning are still needed to verify some of the respective literature.

Digital Age and L2 Learners

Although society is currently in what is considered to be the *digital age*, it does not mean that learners are ready to incorporate all forms of multimedia into the classroom. In fact, empowering students using multimedia might motivate better learning methods, but this could require greater resources since students will need to first learn how to use the various software and what expected of them – for instance – Photoshop, Flash Media, Canva, and other forms of online multimedia platforms. While there are benefits to using multimedia, the cost of incorporating lessons for multimedia competency advancement may be high, even though the benefits of the learning and teaching style might be greatly improved. For this reason, contextual analysis of each department or educational institute would be required.

While the digital age is likely to be more attractive for teachers and learners if adequate preparation by instructional leaders (through professional development and proper

resource consideration) is made, and sufficient readiness is given by teachers and learners; it is the school or institute leader that must ensure that all areas are properly prepared.

English Language Teaching using Multimedia

As a language, English has its own unique rules of speech. Today's English teaching is no longer the same as in the past, just to cope with the *instillation* teaching of the exam, so cultivate and stimulate students' interest in learning, let them dare. It is the responsibility of English teachers to speak and love to speak English and have a good foundation of pronunciation, intonation and language. The English education curriculum is not only for students to have a solid foundation of speech and basic skills, but also to learn students by learning English. The ability to communicate with Chinese and foreign cultural differences and understanding, respect cultural literacy of different cultural customs, broaden horizons, and enhance cross-cultural communication awareness between the nation and the world. The term technology is an essential theme in several fields, including education in this 21st century. This is for the reason that technology has grown to be the information transport in most countries. Recently, technology integration has moved throughout modernisms and changed our societies that have completely transformed the means people consider, work and survive (Grabe, 2007).

The word *media* is the plural of *medium* that means *form of communication*. This can include everything from printed paper to digital data, and covers art, news, educational content and many other forms of information. According to Chan (2013) media have always been strongly related to the processes of teaching and learning as the teachers have always used various tools to represent the knowledge or to demonstrate the skills they would like their students to acquire. Also, medium refers to a means of transmitting and receiving

information including all aids which can be used by teachers and learners in the classroom (Lee, C. 1997).

Media means not only electronic communication instruments, but also simpler devices such as charts, photographs, slides, etc. (Hobbs, 2010).

Smaldino, et al. (2008), mentioned that the media can be categorized into six types, these are text, audio, visuals, video, manipulative and people.

1. Text: Any description or representation of the world, whether fiction or fictional, attempts to describe or define reality and in some way constitutes reality.
2. Audio: the section of television or motion-picture equipment that deals with sound.
3. Visuals: Usually visuals. the picture elements, as distinguished from the sound elements, in films, television, etc. photographs, slides, films, charts, or other visual materials, especially as used for illustration or promotion.
4. Video: Video typically has an audio component that corresponds to the picture displayed on the screen.
5. Manipulative: it is a physical object that can be used as a teaching tool to enable students to participate in hands-on learning in mathematics. They can be used to introduce, practice or remedy concepts.
6. People: the men, women, and children of a particular nation, community, or ethnic group.

Nowadays, with the advent of the Internet, computers and Smartphone's, getting news and receiving information via video has become part of our daily work. Video has become the pen and paper of today and has become the main medium of communication. It is not

surprising that digital media have an impact on education, especially on ELT. As Marlowe and Page (2005) state, while learning a language, students become active, apply the learned rules and lexis, and construct knowledge by interacting with their peers. The recorded videos reflecting students' performance and progress also guide the teacher and students to pinpoint the areas for improvement and then make plans accordingly.

The Pu'er University

Pu'er University is located in Pu'er, a general undergraduate institution of higher learning in Yunnan Province. It is organized by the Yunnan Provincial People's Government and implements a provincial-based co-management and provincial-based management system. Founded in December 1978, Simao Teachers College is one of the first four higher teachers' colleges established in Yunnan Province. In 2012, the undergraduate college Pu'er College was upgraded. The school campus covers an area of 2,124 acres, with a construction area of 202,366 square meters, and there are 6,486 full-time students. According to the Chinese website Baidu Encyclopedia records 2014 official website shows that the college has a humanities college, a foreign language school, political and law college, teacher education college, mathematics and statistics college, biochemistry college, agriculture and forestry college, polytechnic college, management college, art college, sports college. There are 14 teaching units of the School of Continuing Education, ASEAN College and the Department of Ideological and Political Theory. There are 46 majors, including 13 undergraduate majors and 33 specialized colleges. The staff has 521 faculty members, 477 full-time teachers, 120 foreign teachers, 41 professors and 34 doctors (Baidu <http://www.peuni.cn/>).

The goal of the English major in Pu'er University: to cultivate a solid foundation in English language and basic language skills, with a certain humanities and scientific literacy, a strong sense of innovation and a certain international perspective, while at the same time

mastering English education, business , relevant knowledge in the field of English literature and culture, and proficient in the use of English in foreign affairs, economic, trade, culture, education and other departments engaged in translation, teaching, management and other application-oriented talent. To date, the Foreign Languages Institute has 984 students and offers 13 courses, such as: Comprehensive English, English Reading, English Grammar, Spoken English, English Listening, English Pronunciation, English Vocabulary, English Writing, Translation, Courses and Teaching theory, Anglo-American profile, English literature appreciation, and business English.

Related Studies on Students' Perceptions on the Use of Multimedia

A recent study by Cruz, Bittencourt, Neto, Stahl and Luna (2017) on *Students' Perceptions About a Multimedia Learning laboratory: As Experience in Teaching Biology Classes*, found that a study of 159 students concluded that students enjoyed their own learning, and found their classes more challenging, more authentic, and the resources utilized by the teachers to be more convenient. Although they found that there were similar results between both male and female students; there was also no obvious pattern between the preferences of multimedia as well.

Another recent study of 121 students by Banic (2013) titled *The Application of Multimedia Aimed at Improving the Acquisition of Typical Topics in Natural and Social Science Programs in High Schools*, found that student groups played an important role in the effectiveness of multimedia utilization; and so for this reason, there were wide ranging results between the type of learning style between students, their perception of learning, and the preference of elective subjects when multimedia is used.

A study by Maor and Fraser (2005) in *An Online Questionnaire for Evaluating Students' and Teachers' Perceptions of Constructivist Multimedia Learning Environments*

found that utilizing multimedia was not sufficient enough, instead, teachers were encouraged to use both multimedia and other traditional form of complimentary resources to develop critical thinking skills and improved development. While the research was specifically designed to validate the CMLES survey in question, the results also pointed out that the CMLES could be used to reflect on teacher's goal attainment, quality of teaching, and the purpose of using multimedia given each language skill. In fact, Maor and Fraser (2005) state specifically that "because the Constructivist Multimedia Learning Environment Survey (CMLES) provide a basis to judge quantitatively, as well as qualitatively, the effectiveness of educational software in promoting inquiry learning, it is potentially valuable for teachers and students for reflecting on their classroom environment. It can also be used by teachers to help them evaluate how close they achieve their teaching goals, also, to understand how students provide a framework for evaluating their classroom learning experiences" (p.238). Thus, the studies of the two respective researchers conclude that the CMLES has been purposely developed for the enhancement of the instructional program for various reasons.

Summary of the Related Literature

This study has looked at a wide variety of related studies and literature in order to enhance the quality of the study so that varied dimensions might be gleaned upon in the concluding part of this thesis. While there are many studies which have been referenced in this research, the overall summary is that the Constructive Multimedia Learning Environment Survey is the most appropriate method for determining the social constructivist learning environment as a means to enhance the reflective practices of language teachers, as well as adjust and develop the lesson plans for a more meaningful experience for students. In addition, this study has also looked through a variety of current issues in the context of the 21st century, and the difficulty that educational leaders are likely to have in order to progress with a relevant curriculum that meets the future needs of language learners today. While this

study is not exhaustive in its approach to constructive learning and multimedia utilization in a foreign language learning classroom, there is plenty of support that shows the challenges that lay ahead for digital-age teachers and students. For this reason, understanding the perceptions of students toward constructive multimedia learning environments is critical to developing an appropriate setting that encourages better academic achievement scores.



CHAPTER III

RESEARCH METHODOLOGY

The methodology section introduced in this chapter was supported by the literature review presented in the previous chapter. This research was conducted in the Foreign Language School of Pu'er College in China and the populations were freshman and a second-year of English majors and applied English majors.

This chapter presented the research methodology that was used to answer the research questions in this study. This chapter also discussed the settings, population, and the sampling technique used. In addition, a restatement of the research questions, research tools, and the reliability and validity of the tool for the study were discussed. In addition, this chapter describes data collection and data analysis and time frames, and then summarized the research process at the end of this chapter.

Research Design

In this study, the researcher aimed to research the students' perceptions of multimedia within a constructivist classroom environments based on students' demographic factors at Pu'er University, in China, during the academic year of 2019-2020. For this purpose, the researcher specifically measured the demographic variables of the students, in particular, their *age, gender, average grade level, class size, preferences* and *total years of schooling*; their perceptions of multimedia use in a constructivist classroom environment, as well as to research the differences in students' perceptions of multimedia use in a constructivist classroom environments.

To answered the research question, this study used quantitative design to collect data for quantitative analysis. This method was also used to gain a complete understanding of

the data to answer research questions. For the purpose of achieving the research objectives, the statistical methods that used to analyze the data includes; *Frequency* and *Percentage*, *Mean* and *Standard Deviation*.

Population

The population was an English major and Applied English major courses for students and teachers of the Pu'er College of Foreign Languages. According to Baidu Encyclopedia, Pu'er University currently has 11,853 students. These included 200 students, 50 males and 150 females. Among them, there were 100 students in freshman and sophomore, each grade has 25 males and 75 females. They are between 18 and 25 years old. This number was based on the 2018-2019 academic year of the Pu'er College calendar year. As the number of students and teachers was very limited, this study used convenience sampling with 200 students as the participants in the study. The sample used grouped by their age, average grade, class size, family background, gender, total years of schooling, and their preferences.

Table 3.1

Age

Age	Number	Percentage
17-18	100	50
19-20	79	39.50
21-22	20	10.00
23-24	1	0.50
25-26	0	0
Total	200	100

In Table 3.1, the age provided by full-time students indicates that there are 100 students (50%) between the ages of 17 and 18, of which 79 students are between 19 and 20 (39.5%) and the remaining students are 21- Between 22 (10%).

Table 3.2

Gender

Gender	Number	Percentage
Female	150	75
Male	50	25
Total	200	100

The number of female respondents was 150 (75%), more than 50 (25%) of male respondents. This shows that most of Pu'er College's freshman and sophomore students are women, while men are a minority.

Table 3.3

Grade

Grade	Number	Percentage
Freshman	100	50
Sophomore	100	50
Junior	0	0
Senior	0	0
Total	200	100

The table 3.3 of grade results showed that there are 100 first-year full-time students (50%) and 100 sophomore full-time students (50%), as the survey was focusing on freshman sophomores only.

Table 3.4

Total years of English education

Total years of English education	Number	Percentage
Less than 5	10	5
6-10 years	173	86.5
11-15 years	14	7
16 and more	3	1.5
Total	200	100

There are 173 students (86.5%) who have studied English for 6 to 10 years, while 10 students (5%) indicated that they have received English education for less than five years. A portion (7%) of 14 students received English education for about 11 to 15 years, and only 3 (1.5) students received education for more than 16 years.

Research Instrument

The instrument that was used is a written questionnaire authored by Maor and Fraser (2005) from Curtin University of Technology, Australia and Murdoch University.

Demographic questions have been added to support the needs of the research objectives (and are shown below).

The questionnaire consists of two parts. The first part includes demographic information of the participants.

Part I answered the question 1.

Question 1-7 were demographic information of population and the main body of the questionnaire includes items 8-10 was about perceptions on the EFL environment. This included the multimedia, teaching and learning, facilities in the EFL classroom. Also, items 11-13, this included the learning environment (the process of learning, learning to investigate and learning to think) in which each part has five items.

Part II answered the question 2.

The main body of the questionnaire included 15 items. This part focused on the use of multimedia which includes three parts (relevance, ease to use and challenge) where each part has 5 items.

All questions should be answered according to a five-point Likert scale-like response. The questionnaire was designed primarily based on the requirements of the constructivist-learning design which were

Learning to Communicate

	Almost Never	Seldom	Some times	Often	Always
In the class...					
1 I get the chance to talk to other students	1	2	3	4	5

Figure 3.1: Example questions from the Constructivist Multimedia Learning Environment Survey (CMLES).

As illustrated in Figure 3.1 above, a Likert-scale is used to measure each question that shows a sample question.

The Likert-scale was illustrated in the table below:

Table 3.5

Criteria of Interpretation for a 5-point Likert Scale

Frequency	Rating	Range	Description
Always	5	4.51-5.00	Very high
Often	4	3.51-4.50	High
Sometimes	3	2.51-3.50	Moderate
Seldom	2	1.51-2.50	Low
Almost Never	1	1.00-1.50	Very Low

Validity and Reliability

According to the authors of the *Constructivist Multimedia Learning Environment Survey* (CMLES) the specific purpose of the research instrument is to assess students' perceptions and the learning environment using multimedia while teachers' refer to constructivism during their instructional time (Maor and Fraser, 2005). In fact, the validity and reliability of the CMLES have been confirmed in various studies around the world (Banic, 2013; Catalano, 2018; Heinz, Lipowski, Groschner&Seidel, 2012; Khin & Fisher, 2003).

Furthermore, Maori and Fraser (2005) stated that “the CMLES scales demonstrated a high degree of internal consistency reliability (with alpha reliability coefficients ranging from .73 to.82), as well as, satisfactory factorial validity and discriminant validity.

Therefore, the study supported the reliability and validity of the CMLES for assessing students’ perceptions and one of the important aspects for evaluating learning environments which promote the use of multimedia programs and constructivist learning approaches” (p. 221). Further studies by Maor and Fraser (2005) also state that it is also specifically designed for a “social constructivist learning environment while they use multimedia” (p.238). Thus, it is viewed as the appropriate research instrument that directly meets this study’s research objective. At the same time, the Indexes of Objectives Congruence (IOC) is used to determine the reliability of the questionnaire in answering the research question raised in the study and whether the question can be applied in China. For three experts, who have PhD. in Linguistics and more than 40, 30, and 10 years teaching experienced respectively were used to evaluate the questionnaire survey questions. The evaluator chooses:

- 1 = the statement clearly taps objectives (yes as valid);
- 0 = uncertain or unclear (0 revision or modification requires);
- 1 = the statement does not tap objectives (not valid).

Appendix of the Research Instrument

The researcher intends to have the CMLES officially translated into Chinese by a reputable organization or company that has experience with human science-related terminology in order to maintain the validity and reliability standards.

Collection of Data

The data collection was performed as follows:

First, the research would need to obtain informal permission by approaching the department responsible for approving research studies within the universities. This assisted with preliminary dates and the overall data collection process.

Second, the informal permission was given, then the thesis proposal stage was undertaken. When approved, the formal request from the Graduate School of Human Sciences was made for a formal letter to undertake data collection.

Third, when the thesis proposal consent was made, formal permission from the president of Pu'er College and the Dean of the Foreign Languages institution was sought, and then the natural undertaking of the research began.

Finally, the questionnaires were sent to the participants requesting them to participate in the research, and allowed all participants seven days to respond to the questions set out in the questionnaire. A week later, the researchers returned to collect the questionnaire.

Consequently, this study undertook the research according to proper ethical standards for research. As such, consent forms were provided to students from both majors so that they could understand the purpose and objectives of the study, as well as choose to decline to participate if they feel uncomfortable.

Table 3.6

Data Collection Process

Tentative Date	Date Collection Process
Early Mid-May 2020	Thesis Proposal
Last week of May 2020	Request Permission from Pu'er University
Mid-June 2020	Distribute Research Questionnaire
Early July 2020	Data Collection and Input Ends
Early August 2020	Start the Analysis

Data Analysis

Simple statistical methods were used in the undertaking of this study. The IBM® SPSS® Statistics package was utilized for this study. According to the research questions and the research objectives, the following steps were used to analyze the data on the various dimensions for this study.

For the convenience of the reader, the research objectives are as follows:

1. To determine the Chinese students' perceptions on EFL classroom learning environments at Pu'er University.
2. To identify the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning at Pu'er University.

As per the research objectives, the following statistical methods were utilized:

For Research Objective One, this study used *Frequency* and *Percentages* in order to determine the English classroom learning environment, and the *Mean* and *Standard Deviation* for the learning process environment.

For Research Objective Two, this study used the *Mean* and *Standard Deviation* to determine the level of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning.

Summary of the Research Process

Table 3.7: Summary of the Research Process

Research objective	Source of Data or Sample	Research Instrument	Method of Data Analysis
1. To determine the Chinese students' perceptions on EFL classroom learning environments.		Section 1 CMLES Research Instrument	Frequency & Percentage Mean Standard & Deviation
2. To identify the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning.	200 Foreign Language Students at Pu'er University, in China.	Section 2 CMLES Research Instrument	Mean & Standard Deviation



CHAPTER IV

RESEARCH FINDINGS

This chapter identified and discussed the results of the data, which had been collected from the respective school at Pu'er University, in Yunnan, China. With regards to this study's research objectives, the analysis of this study was presented in the following terms: each objective would be presented and the findings would be illustrated and discussed.

Findings of research objective one

This objective determined the Chinese student's perceptions on EFL classroom learning environments. The statistical tool used for this analysis was *IBM® SPSS® Statistics*, frequency and percentage. The findings of the Chinese students' perception on the EFL environment were presented based on the were the facilities of teaching and learning and learning taken place and the environment on the process of learning.

Questions 8-10 would be presented in Table 4.1-4.3 using percentage and frequency. These items were focusing on the facilities used in the classroom, the teaching and learning strategies.

First reported the multimedia used in the English language classroom in Pu'er University. In this section students were asked to choose the different multimedia used by teachers and learners. The Chinese students who participated in this study chose multiple answers. According to the findings illustrated following page of this paper, 104 (52%) students pointed out that the multimedia teachers often use in the classroom are PowerPoint, followed by 100 (50%) students said they would use online test software, and sometimes use videos (46%) and some songs (40.5%). For some 60 (30%) students also pointed out that some teachers rarely use the information on the web.

Table 4.1

Types of Multimedia in Use

Types of Multimedia in use	Frequency	Percentage
PowerPoint	104	52
Online Test software (reading materials, for example)	100	50
Videos	92	46
Songs	81	40.5
Websites	60	30
Other.....	28	14
N= 200		

In Table 4.1, based on the report of the findings, the indication therefore that multimedia was very much a part of the English language teaching and learning.

Table 4.2

Teaching Strategies Used

Teaching Strategies used	Frequency	Percentage
Grammar translation	69	34.5
Teacher-centered	120	60
Memorization	76	38
Students-centered	91	45.5
Group work	79	39.5
Use textbooks materials for teaching and learning	116	58
Individual work	57	28.5
Use online materials for teaching and learning	25	12.5
Group discussion in English	38	19
Individual English presentation	25	12.5
N= 200		

As illustrated, 120 (60%) students and 116 (58%) students pointed out that the teaching method used by the teacher in the classroom is based on the *teacher-centered* teaching method. However, 91 (45.5%) students also indicated that *student-centered* teaching and learning was also used in the classroom as pointed out by 79 (39.5%) students specified that *individual work* was also used in the study. Moreover, 69 (34.5%) of the Chinese

students implied that *Grammar Translation* was still used as one of the strategies to teach the Chinese students. Nevertheless, 38 (19%) and 25 (12.5%) had indicated as well, that *group discussion* and *online materials* were also used in the English language teaching in Pu'er University.

Table 4.3

The overall English language classroom environment

English language classroom environment	Frequency	Percentage
1. Sometimes I feel bored as teachers talk all the time. I wish we have time to talk so the teaching is more student-centered.	84	42
2. The English classroom environment is good and friendly, but lack communication among students.	51	25.5
3. It is very comfortable, especially with the used of multimedia in teaching and learning.	48	24
4. The English classroom is spacious with complete facilities for teaching and learning.	17	8.5
N=200	200	100

As shown in the table, the following answers were a description of the English classroom environment. According to the results of the data, 84 (42%) students felt that the English classroom was mainly centered on teachers' non-stop lectures, and hoped to be more student centered. 51(25.5%) students thought the learning environment was good and clean, but there was a lack of communication between students and teachers, and between students

and students during class. The other 48 students (24%) indicated that when teachers used multimedia they felt comfortable while the rest of the Chinese students 17 (8.5%) were only focusing on the physical feature of the English language classroom

The next part of the students' perception was on the environment on the process of learning. There were three parts on these domains, *learning to communicate*, *learning to investigate* and *learning to think*; each part was consisted of five items.

This part used the 5-likert scale analysis using descriptive analysis by means of Mean (M) and Standard Deviation (SD).

For the interpretation purposes, the corresponding level of each mean is as follow:
1.00-1.50= very low; 1.51-2.50=low; 2.51-3.50= moderate; 3.51-4.50=high; 4.51-5.00= very high.

Table 4.4
Learning to Communicate

Questions	Mean	Standard Deviation	Interpretation
1. I get the chance to talk to other students.	2.27	1.26	Low
2. I discuss with other students how to conduct investigations.	2.35	1.24	Low
3. I ask other students to explain their ideas.	2.21	1.17	Low
4. Other students ask me to explain my ideas.	2.49	1.16	Low
5. Other students discuss their ideas with me.	2.29	1.19	Low
Overall	2.32	1.20	Low

Table 4.4 indicated that the overall average score of the Chinese students' Learning to Communicate was 'low' with M= 2.32 and SD= 1.20. According to the standard of

interpretation, this can be explained as that students' perception on their ability to communicate in English was not good at all. As illustrated, their perception on each item of this domain was relatively 'low'

This result had indicated that there is a need to provide students opportunity to talk with their peers so that they can have time to discuss matters related to their work and so on. Thus, the school where this study was conducted needs to pay attention to this domain, 'learning to communicate' where their perception was relatively 'low.

Table 4.5

Learning to Investigate (Think critically)

Questions	Mean	Standard Deviation	Interpretation
6. I find out answers to questions by investigation.	4.22	.94	High
7. I carry out investigations to test my own ideas.	3.86	1.00	High
8. I conduct follow-up investigations to answer new questions.	4.13	.88	High
9. I design my own ways of investigating problems.	3.84	1.04	High
10. I approach a problem from more than one perspective.	4.15	.81	High
Overall	4.04	.96	High

Table 4.5 illustrated that the overall average scores of students perceptions 'learning to investigate' was 'high'. As indicated the $M=4.04$ and the $SD=.96$ according to the standard

of interpretation, this can be explained that Chinese students thought that they could find answers for investigation and carried out investigations to test their idea in the English classroom in Pu'er University. As indicated in the table Item 6 had $M=4.22$ and $SD=.94$ and Item 7 had $M=3.86$ and $SD=1.00$. The same as the Item 8-Item 10 in which the mean was ranging to $M= 4.13$ with the $SD=.88$, $M=3.84$ with $SD=1.04$ and $M=4.15$ with $SD=.81$ respectively. From the five items, item 6 had the highest score ($m=4.22$ with $SD= .94$) while item 9, *I design my own ways of investigating problems*, was a little bit lower ($M=3.84$ with $SD=1.04$). Based on the result above, this can be interpreted that Chinese students need others who would likely help them with their investigation. This corresponded with item 7; *I carry out investigations to test my own ideas*, which had a lower Mean and Standard Deviation as well. This means, when carrying out investigation with own ideas, someone would be needed to agree or disagree with the investigation otherwise you might not know whether your investigation would be right or wrong.

Table 4.6

Learning to Think (Reflect)

Questions	Mean	Standard Deviation	Interpretation
11. I get to think deep about how I learn.	3.89	.96	High
12.I get to think deep about my own ideas.	4.14	.96	High
13. I get to think deep about new ideas.	3.89	1.03	High
14. I get to think deep how to become a better learner.	4.24	.82	High
15. I get to think deep about my own understandings.	3.87	1.02	High
Overall	4.00	.96	High

Table 6 showed that the overall average score of students' perceptions 'learning to think' was 'high'. As indicated the $M=4.00$ and the $SD=.96$ according to the five standards of interpretation, this can be explained as that Chinese students have a high overall view of what they want to study and think in class.

From the five items, item 14 had the highest score ($M=4.24$ with $SD=.82$) While item 12, *I get to think deep about my own ideas*, was a little bit lower ($M=4.14$ and $SD=.96$). According to the result above, this result means that when thinking with your own ideas, it is necessary to think deeply about your own understanding. Show that students should further understand and absorb the knowledge they have learned.

Findings of research objective two

This objective identified the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning. With regards to the questionnaire, research objective two follows questions one to thirty, and they are illustrated in the following Tables 4.7, 4.8 and 4.9. The statistical tool used for this analysis was *IBM® SPSS® Statistics, Mean and Standard Deviation*.

For this particular research objective, the goal was as follows: to identify the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning within the three domains of multimedia: 'relevance', 'ease to use' and 'challenge'.

Table 4.7

Relevance

Questions	Mean	Standard Deviation	Interpretation
16. Can show how complex real-life environments are	4.11	.89	High
17. Can present data in meaningful ways	3.89	1.06	High
18. Can present information that is relevant to me	4.20	.92	High
19. Can present realistic tasks	3.80	1.03	High
20. Can provide a wide range of information	4.14	.87	High
Overall	4.03	.96	High

Table 7 lists the overall average score of students' perceptions on the use of multimedia was 'high'. As indicated in the table item 18, 'Can present information that is relevant to me', had the highest $M=4.20$ and $SD=.92$ followed by the item 20, 'Can provide a wide range of information' with $M=4.14$ and $SD=.87$ and item 16, 'Can show how complex real-life environments are' with $M=4.11$ and $SD=.89$. As shown, it can be inferred that among the 200 Chinese student participants, the students were viewed multimedia as tools with wide range of information that could help them in different ways not only in their study but also in their day to day existence.

Table 4.8

Ease to Use

Questions	Mean	Standard Deviation	Interpretation
21. Seems to be interesting screen design.	3.95	.99	High
22. Seems to be easy to navigate.	4.18	.90	High
23. Seems to be fun to use.	3.85	1.00	High
24. Seems to be easy to use.	4.21	.85	High
25. Takes only a short time to learn how to use.	3.91	1.01	High
Overall	4.02	.95	High

Table 8 illustrated that the overall average score of students' perceptions 'ease to use' was 'high'. Based on their scaling, item 24 had a highest rating among the five items in which stated that, '*Seems to be easy to use*' with the $M = 4.21$ and $SD = .85$; this followed by item 22, '*Seems to be easy to navigate*' with $M = 4.18$ and $SD = .90$. The indication therefore is that, as Chinese students were more or less digital generation that was the reason why with the overall $M = 4.02$ and $SD = .95$, they perceived this domain, '*ease to use*' as high.

Table 4.9

Challenge

Questions	Mean	Standard Deviation	Interpretation
26. Can make me think.	4.13	0.88	High
27. Can be complex but clear.	3.86	1.01	High
28. Can be challenging to use.	4.14	.96	High
29. Can help me to generate new ideas.	3.86	.98	High
30. Can help me to generate new questions.	4.14	.91	High
Overall	4.03	.95	High

Table 4.9 illustrated that the overall average scores of the domain ‘challenge’ with regards to the use of multimedia as a constructivist approach to English language teaching was ‘high’ with the overall scale of $M = 4.03$ and $SD = .95$.

This can be explained as Chinese students perceived that although multimedia has relevant implication to their learning and easy to use, they understood that there would be a challenge in a way that it would be for the better or positive way. Therefore challenge in this particular context was not difficulties that they would face instead, a challenge that would help them to be ‘resourceful’, ‘investigative’ ‘innovative’, etc. For example, Item 28, 30 and 26, the statement stated that, ‘*Can be challenging to use*’ the indication was that as multimedia has unending features waiting to be discovered with regards to teaching and learning, resourceful students therefore who knows how to search information they need, would likely to find them. The item 30, ‘*Can make me think*’ and 26, ‘*Can help me to generate new questions*’ these statements illustrated how multimedia allows you to be

investigative and not just take yes or agree on everything you read or found using multimedia. Thus multimedia does not only provide information but also help students to think further. As for the rest of the statements these inferred ‘creativity’, such as in item 29, *Can help me to generate new ideas*. Therefore, in terms of ‘challenge’ Chinese perceptions can be inferred as positively high.

Discussion of the findings

To determine the Chinese students’ perceptions on EFL classroom learning environments

The findings of the objective one were indicated on the answer of questions 8-10 about the perceptions on the EFL classroom. The questions 11-13 were about environment on the process of learning. The results showed that the most popular multimedia used by teachers in the classroom were *PowerPoint* and *Online Test Software*, which accounted for 52% and 50% respectively. The result of question 9 illustrated that the most commonly used method by teachers in the classroom was the teacher-centered (60%) in which textbooks were often used for teaching. Although the multimedia materials were mentioned used, however, these were not often used by the English language teachers in the classroom. The indication therefore was that, also multimedia proliferates in different aspects of teaching and learning; teachers in the foreign language department were still relied heavily on the commercial textbooks available in the market used by different universities in China. Questions 10 and 11 illustrated that the students’ favorite multimedia was *PowerPoint* (54.5%). Although students feel that the actual classroom where teaching was held was clean and comfortable they still have desired that multimedia would be integrated more to teaching and learning to generate interesting lesson in which students could interact with each other, thus develop students’ engagement. In addition, provide them more opportunities to communicate with peers.

Consequently, it was also found that with regards to the learning process environment, Chinese students' perceptions on the use of multimedia based on six domains: learning to communicate, learning to investigate, learning to think, use of multimedia, ease to use and challenge, although all domains were obviously high, with regards to 'learning to communicate' was relatively low with $M=2.32$ and $SD= 1.20$.

Interestingly, Chinese students' perception on their actual process reflected on the reality of the English classroom in China as they indicated, 'learning to investigate' and 'learning to think' were relatively high among Chinese students but 'learning to communicate' was low. This finding reflected on the real situation in the classroom where students had little opportunity to communicate with each other. Thus, Chinese students' perception on EFL classroom environments indicated that, there is a need to shift the teaching and learning to be more student-centered and provides students more opportunity to communicate using multimedia sensibly and not just *PowerPoint* or *Online Test Software* as this what teachers and learners need for the 21st century English education is to have a more dynamic classroom where students engage and interact, hence create independents and self-learning individual.

To identify the levels of Chinese students' perceptions on the use of multimedia as a constructivist approach to English language learning.

The findings of the objective two indicated that with regards to the use of multimedia with three domains: 'relevance', 'ease to use' and 'challenge', the Chinese students showed that their perception were 'high'. This indicated that Chinese students' perceptions were positively favorable specifically when it would be used in the classroom. As indicated in the findings Chinese students manifested that using multimedia as a constructivist was relevance to their learning process. They also indicated that using this as a tool tended to be easy and

would likely help them to be more resourceful, investigative and creative. Thus, integrating multimedia in Chinese students English language classroom might have a big advantage as it can provide authentic learning materials which reinforce teaching and learning process. As multimedia in general can help teachers and learners in creative ways, thus, integrating them to different activities that influence interaction might be able to help improve their communicative skills, the area where Chinese students perceive as low part of their learning process environment.

Summary

This chapter discussed all findings of the two research questions posed in this study. The findings have indicated the English language teaching environment both the physical and facilities used in English teaching and learning. The result found, the environment perception was supported by the students' perception on the use of the multimedia as a constructivist's approach to teaching and learning where student-centered teaching and learning would be used and integrated by multimedia to foster students learning process.

CHAPTER V

CONCLUSION

This chapter, the conclusion part of the thesis briefly introduced the summary of the study and summary of discussion, and explained the pedagogical implications of this research. At the same time, the limitations of this research and the conclusion would also be discussed.

Summary of the study

This study investigated the Chinese EFL classroom learning environment and students' perceptions of using multimedia as a constructivist approach to English language learning. The research was conducted at Pu' University in Yunnan, China. As mentioned in Chapter IV, the research has two goals and two research questions, which are answered in Chapter 4. Participants in this study are 200 freshmen and sophomore students studying applied English at the School of Foreign Languages. This study uses a five-point Likert scale to conduct a questionnaire survey.

Summary of discussion

This section summarizes the discussion and relating them with the findings of the previous research studies.

The student's perceptions on the Chinese EFL classroom learning environment

The findings indicated that students' perception on the Chinese students' learning environment was depended on the classroom where the actual teaching was held, the media they used, the teaching approach they utilized and the process of learning environment of the

students themselves. As found, the English language classroom seemed like it was still conducted in a more traditional way as teaching was still held in a teacher centered approach



where textbooks were dominated teaching materials used in the classroom while multimedia learning materials were rarely used in class. It was also found that Chinese students desired to a more student-centered in the classroom where multimedia used for teaching and learning. As the teaching approaches are changing so as students learning approaches in which students are not passive learners anymore (Bada & Olusegun, 2015). It is perceived that students' learn more, and enjoy learning more when they are actively involved, rather than passive learners. Thus, this should be focused on a more student-centered constructs as these allow students to integrate their understanding and knowledge of the world as they reflected on their experiences. In learning process when they encounter something new, they can merge their previous ideas and experience with new information as irrelevant, thus, they can be active creators of their knowledge (Aljohani, 2017). For the teachers therefore they can pose as facilitator and providers of experience rather than those who are always in control. Additionally, language teaching applications in a student-centered classroom environment are perceived to be more effective and successful than the traditional language teaching methods as teachers encourage and accept student autonomy and initiative by being willing to let go of classroom control (Aljohani, 2017; Gul, 2016). As Can (2009) pointed, the use of multimedia as a constructivist approach promises to promote learners' language and communication skills and to develop their autonomy, social and interactive skills to help them develop, making them more confident, active and responsible.

The Chinese student's perceptions on the use of multimedia as a constructivist approach to English language teaching and learning

As perceived by the Chinese students, the use of multimedia as a constructivist approach to English language teaching and learning were in fact beneficial for the language process of the learners specifically English. According to the research of Ghasemi and Hashemi (2011), media technologies, useful websites and certain computer programs which

helps students learning process. This means learners can access, select and interpret information, communicate with others, present information, gain confidence and independence and will likely to be autonomous in their own learning.

Students' high perceptions of using multimedia as a constructivist approach to learning in the classroom can help to improve their English learning ability in different ways such as, discussing ideas between peers and teachers. This is supported by Cavalheiro (2015) study which he emphasized that with the rapid development of science and technology, multimedia technology and its functions have more and more influence on English teaching, which shapes the teaching mode of the new era. This illustrated how multimedia and technology play an active role in promoting activities in teaching and learning in the English classroom (Aljohani, 2017; Gul, 2016; Marlowe & Page, 2005). Therefore, reshaping the English teaching by changing the skills of communication between teachers and students hold important lessons for interpreting results of learning based on the environment which supports individuals to bring different background knowledge, experience, and interests to the learning situation. Hence, making unique connections in building knowledge and allow students to be responsible for their own learning

As (Bada & Olusegun, 2015) indicated in their study which supported this particular study, that education works best when it concentrates on thinking and understanding as the Chinese indicated using multimedia may help them to 'ask more questions' which is supported by constructivism as this approach concentrates on learning how to think and understand. Thus, constructivism gives students ownership of what they learn, since learning is based on students' questions and explorations and engage them to take initiatives on their personal knowledge. As findings found Chinese students perceive multimedia to let them engage in creative instincts which help them to express their knowledge through a variety of ways.

Different studies have supported this notion that students in constructivist classrooms learn to question things and to apply their natural curiosity to the world. Most importantly, develops their social and communication skills by creating a classroom environment that emphasizes collaboration and exchange of ideas because they can articulate their ideas clearly using collaborative tasks. Thus, as the world changes to a more digital ways of learning, multimedia needs to be integrated in the classroom.

Pedagogical implications

This study poses few pedagogical implications. There are few advantages and disadvantages this study implies.

First multimedia provides a richer teaching method of college English teaching. With the help of various videos, audios and images, teachers can collect various learning materials to the maximum, allowing students to learn authentic English, increasing the charm of English teaching and improving the interest in college students specifically in Pu'er University in English learning. This can allow students to feel the charm of language, so that students' English language ability can be greatly improved with the integration of different multimedia materials. For this reason, this helps to achieve the purpose of constructing learning situations advocated by constructivism.

Second, the multimedia teaching environment is conducive to improving students' cross-cultural communication skills. In the multimedia college English teaching mode, perhaps teachers can introduce historical videos, so that students can understand the culture and language knowledge of different countries that use English language as a lingua franca. When students construct knowledge and reflecting on the student-centered teaching thought, students can choose according to their own experience.

For teachers, teachers may help students deepen their understanding of knowledge, and reflect the cognitive subject status of students in classroom teaching. This is also the construction in which point of view emphasized on the doctrine of letting learners construct their own knowledge system. Letting students' emphasize on their own self-learning, they might be able to change the existing knowledge structure of their own understanding, which can eliminate the boredom of learning on process and the teaching drawbacks if learning method is single.

Disadvantages

Using multimedia as a constructivist approach for English learning and teaching also has some disadvantages.

First for students, when teachers use multimedia for teaching, the teaching process can be faster than the previous teaching progress, which can make students unable to follow the classroom learning. The teaching speed of the teachers and the students whose academic performance is lagging behind has a tendency to not fully absorb the new information, and the quality of learning will likely be reduced.

Secondly, many teachers pay too much attention to the student's dominant position in the process of multimedia classroom teaching might ignore their own leading role. Finally, as far as teachers are concerned, most college English teachers have not received network information technology training and education, and may have insufficient understanding of computer software. In the process of making multimedia part of teaching and learning, they only change traditional teaching notes and after-school exercises. In electronic form, this form of multimedia will not only improve the effectiveness of English classroom teaching, but will also affect students' English learning enthusiasm.

For Teachers: The use of multimedia in EFL classrooms can provide a meaningful and interesting process in the language learning process, create an active classroom atmosphere and promote learning. Teachers should also pay attention to selecting materials available on the Internet according to the needs of students. But teachers need to know how to use these different types of multimedia functions correctly. The needs of students depend on their learning ability and the teaching skills of the teacher. Therefore, integrating multimedia into teaching also requires some consideration, because different factors are involved, such as teaching methods, students' abilities, and teachers' ability to use multimedia, all of which should be taken into consideration.

For Students: For students in English courses, through the use of multimedia learning, it is possible for learners to concentrate more in the classroom, thereby devoting more personal time to learning outside the classroom. Therefore, students in English language courses may be more interested in studying hard. In addition, although students can find a variety of learning resources through multimedia, students need to be aware of the correct information before they can be used in learning, so as to understand the benefits that different multimedia can bring to them.

For future researchers: The use of multimedia as a constructivist approach to learning and teaching still needs further research. Some suggestions may be based on the views of students or teachers in different regions. There will be more participants to see how students view the views on how to use multimedia for learning in the classroom. Another suggestion is to suggest that researchers adopt a hybrid method for research. In this way, researchers can not only answer questions on the surface, but also collect relevant information. This may add more value to future research and support quantitative data and findings.

Limitation of the study

First, since the 200 participants are only from Pu'er College, the study cannot be summarized as a representative of Yunnan students learning English teaching. Certain explanations used throughout the questionnaire survey may not be able to fully convey the full background of the Chinese school students' views on the use of multimedia.

In addition, the instrument used in this study was only focusing on questionnaire survey, as this particular study has only employed qualitative approach design, thus there are more questions that need to be clarified if mixed-method was used.

Therefore as the use of multimedia for teaching has become an important way to continuously improve the quality of teaching. Further studies need to be done to fully comprehend how constructivist approach helps students' language communication skills.

Conclusion

Since the use of multimedia as a constructivist approach is a new field in Pu'er College in English teaching and learning, it is necessary to understand how to integrate this method into the traditional English classroom. As a researcher, students might think that using multimedia to learn will likely to help them improve the students' four comprehensive skills, however, they still need to combine multimedia with the content needed in teaching. Similarly, teachers also need to understand the types of textbooks they use in class. If teachers do not understand the methods and strategies they can use, then everything will be of no value. In other words, the most important thing is that teachers can impart knowledge, and students can gain more interest from this teaching to learn knowledge.

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APPENDIX A

CMLES Research Instrument

English Version

CONSTRUCTIVIST MULTIMEDIA LEARNING ENVIRONMENT SURVEY (CMLES)

Questionnaire Survey

Purpose of the Questionnaire

This survey requests you to describe important aspects of the classroom environment that you are in right now. There are no right or wrong answers, and no identifiable information will be asked of you. Your opinion is wanted. Your participation is part of a research study at Assumption University of Thailand, and will be used to determine what your perspectives are about multimedia utilization so that improvements can be made to the foreign language classroom learning environment.

There are 40 questions, and this questionnaire may take up to 15 minutes to complete.

Instructions: How to respond to each question

Part I, circle one answer for each demographic question.

Part A Question 1-7

Question 8 and 9, provide multiple answers applicable to you.

Question 10, provide a short paragraph answer.

Part B Question 1-15, circle one answer for each question.

Part II, circle one answer for each question.

PART I: Demographic information and classroom environment

Part A

1. What is your age?

17-18

19-20

21-22

23-24

25-26

2. What is your gender?

Male

Female

3. What grade are you currently in?

Freshman

Sophomore

Junior

Senior

4. Approximately, how many students are there in your class??

11-20

21-30

31-40

41-50

5. How many years of English education have you achieved?

Less than 5

6-10 years

11-15 years

16 and more

6. What is your current GPA?

Less than 2.0

2.10-2.50

2.60-3.00

3.10-3.50

3.60-4.00

7. What is your household's average yearly income?

Up to 10,000

10,000-15,000

15,000-20,000

More than 50,000

Part B.1 : Perceptions on the EFL environment: multimedia, teaching and learning and facilities in the EFL classroom

8. What types of multimedia are being used in your English language classroom?

- PowerPoint
- Online Test software (reading materials, for example)
- Videos
- Songs
- Websites
- Other.....

9. What are the commonly used teaching and learning strategies your English teachers used in the English classroom?

- Grammar translation
- Teacher-centered

- Memorization
- Students-centered
- Group work
- Use textbooks materials for teaching and learning
- Individual work
- Use online materials for teaching and learning
- Group discussion in English
- Individual English presentation

10. How will you describe the overall environment of your English language classroom?

(Please check all information which describes the environment of your English language classroom. You can choose more than one)

1. The English classroom is spacious with complete facilities for teaching and learning.
2. The English classroom is new and the teaching environment is very good.
3. I am not so satisfied with my classroom because the equipment is a little bit old.
4. The overall environment of English classroom is very good and my friends cooperate with the task we do.
5. Sometimes I feel bored as teachers talk all the time. I wish we have time to talk so the teaching is more student-centered.
6. The English language classroom is teacher-centered. The teacher talks we listen.
7. The English classroom environment is good but sometimes boring as the lesson is repetitive.

8. The English classroom environment is well designed and beautiful but sometimes it is hard to concentrate in class.

9. It is very comfortable, especially with the used of multimedia in teaching and learning.

10. The English classroom environment is good and friendly, but lack communication among students

Section B. 2: Environment on the process of learning

Choose the most accurate answer which reflects your response of every question, according to scale from 1 to 5.

5=always, 4=often, 3=sometimes, 2=seldom, 1=almost never.

Circle the frequency you think most accurately reflects each question's response.

11. Learning to Communicate

	Almost Never	Seldom	Some times	Often	Always
In the class...					
1 I get the chance to talk to other students	1	2	3	4	5
2 I discuss with other students how to conduct investigations	1	2	3	4	5
3 I ask other students to explain their ideas	1	2	3	4	5
4 Other students ask me to explain my ideas	1	2	3	4	5
5 Other students discuss their ideas with me	1	2	3	4	5

12. Learning to Investigate

In the class...

6	I find out answers to questions by investigation	1	2	3	4	5
7	I carry out investigations to test my own ideas	1	2	3	4	5
8	I conduct follow-up investigations to answer new questions	1	2	3	4	5
9	I design my own ways of identified problems	1	2	3	4	5
10	I view a problem from more than one perspective	1	2	3	4	5

13. Learning to Think

In the class...

11	I get to think deep about how I learn	1	2	3	4	5
12	I get to think deep about my own ideas	1	2	3	4	5
13	I get to think deeply about new ideas	1	2	3	4	5
14	I get to think deeply how to become a better learner	1	2	3	4	5
15	I get to think deeply about my own understandings	1	2	3	4	5

Part II: This part will answer the research question two.

Choose the most accurate answer which reflects your response of every question, according to scale from 1 to 5.

5=always, 4=often, 3=sometimes, 2=seldom, 1=almost never.

Use of multimedia

Relevance	Almost Never	Seldom	Some times	Often	Always
Working with the multimedia program,					
1 can show how complex real-life environments are	1	2	3	4	5
2 can present data in meaningful ways	1	2	3	4	5
3 can present information that is relevant to me	1	2	3	4	5
4 can present realistic tasks	1	2	3	4	5
5 can provide a wide range of information	1	2	3	4	5

Ease to Use

Working with the multimedia program,					
6 seems to be interesting screen design	1	2	3	4	5
7 seems to be easy to navigate	1	2	3	4	5
8 seems to be fun to use	1	2	3	4	5
9 seems to be easy to use	1	2	3	4	5
10 takes only a short time to learn how to use	1	2	3	4	5

Challenge

Working with the multimedia program,

11 can make me think	1	2	3	4	5
12 can be complex but clear	1	2	3	4	5
13 can be challenging to use	1	2	3	4	5
14 can helps me to generate new ideas	1	2	3	4	5
15 can helps me to generate new questions	1	2	3	4	5

This is the end of the questionnaire. I appreciate your cooperation.





APPENDIX B

CMLES Research Instrument

Chinese Version

建构主义多媒体学习调查 (CMLES)

问卷调查

问卷目的

此调查要求您描述您当前所处教室环境的重要方面。没有正确或错误的答案，也不会要求您提供任何可识别的信息，征求您的意见。您的参与是泰国易三仓大学的一项研究的一部分，将用于确定您对多媒体利用的看法，以便可以改进外语课堂学习环境。

有40个问题，此调查表最多可能需要15分钟才能完成。

说明：如何回答每个问题

第一部分，针对每个人口统计问题圈出一个答案。

A部分问题1-7

B部分第一小部分 问题8和9提供适用于您的多个答案。问题10，提供简短的答案。

B部分第二小部分，问题1-15，为每个问题圈出一个答案。

第二部分，问题1-15，为每个问题圈出一个答案。

第一部分: 人口统计信息和课堂环境

A 部分

1. 你的年龄?

17-18

19-20

21-22

23-24

25-26

2. 你的性别?

男

女

3. 您目前就读什么年级?

大一

大二

大三

大四

4. 您的班级大约有多少学生?

11-20

21-30

31-40

41-50

5. 你取得了多少年的英语教育?

少于五年

6-10 年

11-15 年

16 年以上

6. 你目前的平均绩点是多少?

小于2.0

2.10-2.50

2.60-3.00

3.10-3.50

3.60-4.00

7. 您家庭的平均年收入是多少？

高达0,000

10,000-15,000

15,000-20,000

超过 50,000

B.1 部分：对 EFL 环境的看法：EFL 教室中的多媒体，教学和设施

8. 您的英语教室正在使用哪种类型的多媒体？

- 微软幻灯片软件
- 在线测试软件（例如，阅读材料）
- 影片
- 歌曲
- 网站
- 其他.....

9. 您的英语老师在英语课堂上常用的教学策略是什么？

- 语去翻译
- 以教师为中心

- 背诵
- 以学生为中心
- 小组作业
- 使用教材材料进行教学
- 个人作业
- 使用在线材料进行教学
- 用英文小组讨论
- 个人英语演讲

10. 您将如何描述您的英语课堂的整体环境？

(请检查所有描述您的英语教室环境的信息。您可以选择多个)

1. 英语教室宽敞，教学设施齐全。
2. 英语教室是新的，教学环境非常好。
3. 我对教室不太满意，因为设备有些陈旧。
4. 英语课堂的总体环境非常好，我的朋友们配合我们的工作。
5. 有时候我一直觉得无聊，因为老师一直在说话。我希望我们有时间进行讨论，以便使教学更加以学生为中心。
6. 英语教室是以老师为中心的。老师说我们听。
7. 英语教室的环境很好，但由于课程重复，有时会很无聊。

8.英语教室的环境设计合理，环境优美，但有时很难集中精力上课。

9.非常舒适，尤其是在教学中使用多媒体时。

10.英语课堂环境良好和友善，但学生之间缺乏沟通。

B 部分 2: 学习过程中的环境

根据从 1 到 5 的等级，选择最准确的答案来反映您对每个问题的回答。

5 =总是，4 =经常，3 =有时，2 =很少，1 =几乎从不。

圈出您认为最能准确反映每个问题答案的频率。

11. 学习交流

几乎
从不 很少 有时 经常 总是

在课堂上...

1 我有机会与其他学生交谈	1	2	3	4	5
2 我与其他学生讨论如何进行调查	1	2	3	4	5
3 我询问其他学生解释他们的想法	1	2	3	4	5
4 其他学生请我解释我的想法	1	2	3	4	5
5 其他学生跟我讨论他们的想法	1	2	3	4	5

12. 学习调查

6 我通过调查找出问题的答案 1 2 3 4 5

7	我经常通过检验自己的想法在课堂上...	1	2	3	4	5
8	我进行后续调查以回答新问题	1	2	3	4	5
9	我设计自己的调查问题的方式	1	2	3	4	5
10	我从多个角度处理问题	1	2	3	4	5

13.学习思考

在课堂上...

11	我要深思一下我的学习方式	1	2	3	4	5
12	我可以深入思考自己的想法	1	2	3	4	5
13	我会深入思考新想法	1	2	3	4	5
14	我要深入思考如何成为一个更好的学习者	1	2	3	4	5
15	我要深入思考自己的理解	1	2	3	4	5

第二部分：这部分将回答研究问题二。

根据从 1 到 5 的等级，选择最准确的答案来反映您对每个问题的回答。

5 = 总是，4 = 经常，3 = 有时，2 = 很少，1 = 几乎从不。

使用多媒体

	几乎 从不	很少	有时	经常	总是
使用多媒体程序					
1 展示了现实生活中的环境有多复杂	1	2	3	4	5
2 以有意义的方式呈现数据	1	2	3	4	5
3 提供与我有关的信息	1	2	3	4	5
4 提出现实的任务	1	2	3	4	5
5 有广泛的信息	1	2	3	4	5

使用方便

使用多媒体程序,

6 具有有趣的屏幕设计	1	2	3	4	5
7 易于浏览	1	2	3	4	5
8 使用起来很有趣	1	2	3	4	5
9 易于使用	1	2	3	4	5
10 只需要很短的时间就可以学会使用	1	2	3	4	5

挑战

使用多媒体程序,

11 让我思考	1	2	3	4	5
12 很复杂但很清楚	1	2	3	4	5
13 使用具有挑战性	1	2	3	4	5
14 帮助我产生新想法	1	2	3	4	5
15 帮助我提出新问题	1	2	3	4	5

问卷到此结束。感谢您的配合。



APPENDIX C

Letter of Certification

Letter of Certification

This is to certify that Ms. Chunxia Xu's Questionnaires for her Master's thesis in Assumption University of Thailand were translated and edited into standardized Chinese simplified version by our professional translator from Shandong YIDUOYUN Translation Service CO. LTD. The translated version was exactly developed based on the original English one, and a back-translation procedure was used for checking the translation validity. Thus, the quality of the translated Chinese version was confirmed herein this letter.

I confirm the above translation is an accurate translation of the original document.
 Translator: Xie Fobin Tel: 18560126198 Certificate No.: EVIII 1310066692
 Company: Shandong Yiduoyun Translation Service Co., Ltd.
 Address: Room 2-1404-1, Jinqiao International Mansion, No. 2277 Erhuan East Road,
 Licheng District, Jinan City,
 Shandong Province
 Date of translation: June 20, 2020





APPENDIX D

IOC Comments of 3 Experts

NO	Objectives	Opinion Scores of Experts			Scores	IOC values	Content Validity (Yes/NO)
		Expert 1	Expert 2	Expert 3			

Part I Demographic information and classroom environment

1	What is your age?	1	1	1	3	1	Yes
2	What is your gender?	1	1	1	3	1	Yes
3	What grade are you currently in?	1	1	1	3	1	Yes
4	Approximately, how many students are there in your class?	1	1	1	3	1	Yes
5	How many years of English education have you achieved?	1	1	1	3	1	Yes
6	What is your current GPA?	1	1	1	3	1	Yes
7	What is your household's average yearly income?	1	1	1	3	1	Yes

8	What types of multimedia are being used in your English language classroom?	1	1	1	3	1	Yes
9	What are the commonly used teaching and learning strategies your English teachers used in the English classroom?	1	1	1	3	1	Yes
10	How will you describe the overall environment of your English language classroom?	1	1	1	3	1	Yes

Environment on the process of learning

Learning to Communicate

1	I get the chance to talk to other students	1	1	1	3	1	Yes
2	I discuss with other students how to conduct investigations	1	1	1	3	1	Yes

3	I ask other students to explain their ideas	1	1	1	3	1	Yes
4	Other students ask me to explain my ideas	1	1	1	3	1	Yes
5	Other students discuss their ideas with me	1	1	1	3	1	Yes

Learning to investigate

1	I find out answers to questions by investigation	1	1	1	3	1	Yes
2	I carry out investigations to test my own ideas	1	1	1	3	1	Yes
3	I conduct follow-up investigations to answer new questions	1	1	1	3	1	Yes
4	I design my own ways of identified problems	1	1	1	3	1	Yes
5	I view a problem from more than one perspective	1	1	1	3	1	Yes

Learning to think

3	can present information that is relevant to me	1	1	1	3	1	Yes _{1 0 8}
4	can present realistic tasks	1	1	1	3	1	Yes
1	I get to think deep about how I learn	1	1	1	3	1	Yes
2	I get to think deep about my own ideas	1	1	1	3	1	Yes
3	I get to think deeply about new ideas	1	1	1	3	1	Yes
4	I get to think deeply how to become a better learner	1	1	1	3	1	Yes
5	I get to think deeply about my own understandings	1	1	1	3	1	Yes

Part II Use of multimedia

1	can show how complex real-life environments are	1	1	0	2	0.67	Yes
2	can present data in meaningful ways	1	1	0	2	0.67	Yes

5	can provide a wide range of information	1	1	1	3	1	Yes
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Ease to use

6	seems to be interesting screen design	1	1	1	3	1	Yes
7	seems to be easy to navigate	1	1	1	3	1	Yes
8	seems to be fun to use	1	1	1	3	1	Yes
9	seems to be easy to use	1	1	1	3	1	Yes
10	takes only a short time to learn how to use	1	1	1	3	1	Yes

Challenge

11	can make me think	1	1	1	3	1	Yes
12	can be complex but clear	1	1	1	3	1	Yes
13	can be challenging to use	1	1	1	3	1	Yes
14	can helps me to generate new ideas	1	1	1	3	1	Yes

15	can helps me to generate new questions	1	1	1	3	1	Yes
Total		40	40	38	118	0.98	Yes





Personal Profile

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Educational Background

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